

## ORDINANCE \_\_\_\_\_

AN ORDINANCE relating to Seattle Building Code, amending Section 22.100.010, and adopting by reference Chapters 2 through 28, Chapters 31 through 35 of the 2009 International Building Code; and amending certain of those chapters; and adopting a new Chapter 1 for the Seattle Building Code related to administration, permitting and enforcement, a new Chapter 29 related to plumbing systems, and a new Chapter 30 related to elevators and conveying systems; and repealing Sections 2-30 of Ordinance 122528 and Sections 2-13 of Ordinance 122773.

### BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. Section 22.100.010 of the Seattle Municipal Code, which Section was last amended by Ordinance 122773, is amended as follows:

#### **SMC 22.100.010 Adoption of the International Building Code.**

The Seattle Building Code consists of: 1) the following portions of the ~~((2006))~~ 2009 edition of the International Building Code published by the International Code Council: Chapters 2 through 28, and 31 through ~~((33, and))~~ 35; 2) the amendments and additions to the ~~((2006))~~ 2009 International Building Code adopted by City Council by ordinance; and 3) ~~((all errata published by the International Code Council before June 15, 2008)) ((4)))~~ Chapters 1, 29, and 30 ~~((and 34))~~ adopted by City Council by ordinance ~~((; 5) American Society of Mechanical Engineers (ASME) standards ASME17.1-2004 with ASME A17.1a-2005 with Addenda and Appendices A through D, F through I, K through M and P, Safety Code for Elevators and Escalators, excepting Section 5.10 of ASME A17.1, Elevators Used for Construction; 6) ASME A18.1 2005, Safety Standard For Platform Lifts and Stairway Chairlifts; and 7) Washington Administrative Code (WAC) Chapter 296-96, Safety regulations for all elevators, dumbwaiters, escalators and other conveyances)). One copy of the ~~((2006))~~ 2009 International Building Code ~~((and each of the~~~~

ASME standards listed above together with WAC Chapter 296-96 are)) is filed with the City  
Clerk in C.F. ((308942)) \_\_\_\_\_.

Section 2. Chapter 1 of the 2009 Seattle Building Code is adopted to read as follows:

## **Chapter 1**

### **ADMINISTRATION**

#### **SECTION 101**

##### **TITLE, PURPOSE AND SCOPE**

**101.1 Title.** This subtitle shall be known as the “Seattle Building Code,” may be so cited, and is referred to herein as “this code.”

**101.2 Scope.** The provisions of this code apply to the construction, alteration, moving, demolition, repair and occupancy of any building or structure within the City. See Chapter 32 for regulation of structures located on, over or under public property or a public right of way.

##### **Exceptions:**

1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the *International Residential Code*.
2. This code does not apply to public utility towers and poles, mechanical equipment not specifically regulated in this code, construction equipment and structural components thereof, and hydraulic flood control structures.

**101.3 Applicability of Seattle Building Code.** A building permit application shall be considered under the Seattle Building, Mechanical, Fuel Gas, Energy, Stormwater and Grading

codes in effect on the date a valid and fully complete building permit application is submitted or on a date as otherwise required by law.

**101.3.1 Complete building permit applications.** A building permit application is complete if the building official determines it meets the requirements of Sections 106.5.1 through 106.5.2.6, and the application shall include, without limitation, the construction documents for the architectural and structural components of the building, except that if the building official allows an application for a portion of a building, the application shall include at least the structural frame for the entire building.

**101.3.2 Phased permits.** Permits for portions of buildings issued according to Section 106.6.4 shall be considered under the codes in effect when a building permit application for the building is complete according to Section 101.3.1.

**101.4 Additions, alterations, repairs and change of occupancy.** Additions, alterations, repairs, and changes of occupancy or character of occupancy in all buildings and structures shall comply with the provisions for new buildings and structures, except as otherwise provided in Chapter 34 of this code.

**101.5 Purpose.** The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, occupancy, location and maintenance of all buildings and structures within the City and certain equipment specifically regulated herein. The purpose of this code is to provide for and promote the health, safety and welfare of the general public, and not to create or

otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of this code.

**101.6 Internal consistency.** Where in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive governs. Where there is a conflict between a general requirement and a specific requirement, the specific requirement is applicable.

**101.7 Referenced codes and standards.** The codes and standards referenced in this code are considered part of this code to the extent prescribed by each such reference. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code apply, except that nothing in this Code limits the effect of any provision of the Grading Code, Stormwater Code, or Regulations for Environmentally Critical Areas.

**101.8 Appendices.** Provisions in the appendices of the *International Building Code* do not apply unless specifically adopted.

**101.9 Metric units.** Wherever in this code there is a conflict between metric units of measurement and U.S. customary units, the U.S. customary units govern.

## SECTION 102

### UNSAFE BUILDINGS, STRUCTURES OR PREMISES

**102.1 Emergency order.** Whenever the building official finds that any building or structure or premises, or portion thereof is in such a dangerous and unsafe condition as to constitute an imminent hazard to life or limb, the building official may issue an emergency order. The emergency order may (1) direct that the building, structure or premises, or portion thereof be

1 restored to a safe condition by a date certain; (2) require that the building, structure or premises,  
2 or portion thereof, be vacated within a reasonable time to be specified in the order, or in the case  
3 of extreme danger, may specify immediate vacation of the building, structure or premises, or  
4 portion thereof; or (3) authorize immediate disconnection of the utilities or energy source.

5 **102.1.1 Service of emergency order.** The order shall be posted on the premises or  
6 personally served on the owner of the building or premises or any person responsible for the  
7 condition. The order shall specify the time for compliance.

8 **102.1.2 Effect of emergency order.** No person may occupy a building, structure or  
9 premises, or portion thereof, after the date on which the building is required to be vacated  
10 until the building, structure or premises, or portion thereof, is restored to a safe condition as  
11 required by the order and this code. It is a violation for any person to fail to comply with an  
12 emergency order issued by the building official.

13 **102.2 Hazard correction order.** Whenever the building official finds that an unsafe building,  
14 structure or premises exists, the building official may issue a hazard correction order specifying  
15 the conditions causing the building, structure or premises to be unsafe and directing the owner or  
16 other person responsible for the unsafe building, structure or premises to correct the condition by  
17 a date certain. In lieu of correction, the owner may submit a report or analysis to the building  
18 official analyzing said conditions and establishing that the building, structure or premises is, in  
19 fact, safe. The building official may require that the report or analysis be prepared by a licensed  
20 engineer and may require compliance with Chapter 34.

1       **102.2.1 Service of hazard correction order.** The order shall be posted on the premises or  
2       personally served on the owner of the building or premises or any person responsible for the  
3       condition and shall specify the time for compliance.

4       **102.2.2 Effect of hazard correction order.** It is a violation for any person to fail to comply  
5       with a hazard correction order as specified in this subsection.  
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### 7                               **SECTION 103**

## 8                               **ENFORCEMENT, VIOLATIONS AND PENALTIES**

9       **103.1 Violations.** It is a violation of this code for any person to:

- 10       1. erect, construct, enlarge, repair, move, improve, remove, convert, demolish, equip,  
11       occupy, inspect or maintain any building or structure in the City, contrary to or in  
12       violation of any of the provisions of this code;
- 13       2. knowingly aid, abet, counsel, encourage, hire, induce or otherwise procure another to  
14       violate or fail to comply with this code;
- 15       3. use any material or to install any device, appliance or equipment that does not comply  
16       with applicable standards of this code or that has not been approved by the building  
17       official;
- 18       4. violate or fail to comply with any order issued by the building official pursuant to the  
19       provisions of this code or with any requirements of this code;
- 20       5. remove, mutilate, destroy or conceal any notice or order issued or posted by the building  
21       official pursuant to the provisions of this code, or any notice or order issued or posted by  
22       the building official in response to a natural disaster or other emergency;
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6. conduct work under a permit without requesting an inspection as required by Section 108.

**103.2 Notice of violation.** If, after investigation, the building official determines that standards or requirements of this code have been violated or that orders or requirements have not been complied with, the building official may serve a notice of violation upon the owner, agent, or other person responsible for the action or condition. The notice of violation shall state the standards or requirements violated, shall state what corrective action, if any, is necessary to comply with the standards or requirements, and shall set a reasonable time for compliance.

**103.2.1 Service of notice of violation.** The notice shall be served upon the owner, agent or other responsible person by personal service or regular first class mail addressed to the last known address of such person or if no address is available after reasonable inquiry, the notice may be posted in a conspicuous place on the premises. The notice may also be posted if served by personal service or first class mail. Nothing in this section limits or precludes any action or proceeding to enforce this code, and nothing obligates or requires the building official to issue a notice of violation prior to the imposition of civil or criminal penalties.

**103.2.2 Review of notice of violation by the building official.**

**103.2.2.1 Request for review.** Any person affected by a notice of violation issued pursuant to Section 103.2 may obtain a review of the notice by making a request in writing within ten days after service of the notice. When the last day of the period computed is a Saturday, Sunday, or City holiday, the period runs until 5 p.m. of the next business day.

**103.2.2.2 Review procedure.** The review shall occur not less than ten nor more than 20 days after the request is received by the building official unless otherwise agreed to by the

1 person requesting the review. Any person affected by the notice of violation may submit  
2 additional information to the building official. The review shall be made by a representative  
3 of the building official who will review any additional information that is submitted and the  
4 basis for issuance of the notice of violation. The reviewer may request clarification of the  
5 information received and a site visit.  
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7 **103.2.2.3 Decision.** After the review, the building official shall:

- 8 1. Sustain the notice;
- 9 2. Withdraw the notice;
- 10 3. Continue the review to a date certain; or
- 11 4. Amend the notice.  
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13 **103.2.2.4 Order.** The building official shall issue an order containing the decision within  
14 15 days of the date that the review is completed and shall cause the order to be mailed by  
15 regular first class mail to the persons requesting the review and the persons named on the  
16 notice of violation, addressed to their last known addresses.  
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18 **103.3 Stop work orders.** The building official may issue a stop work order whenever any  
19 work is being done contrary to the provisions of this code, or in the event of dangerous or  
20 unsafe conditions related to construction or demolition. The stop work order shall identify  
21 the violation and may prohibit work or other activity on the site.  
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23 **103.3.1 Service of stop work order.** The building official may serve the stop work order by  
24 posting it in a conspicuous place at the site, if posting is physically possible. If posting is not  
25 physically possible, then the stop work order may be served in the manner set forth in the  
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Revised Code of Washington (RCW) 4.28.080 for service of a summons or by sending it by first class mail to the last known address of: the property owner, the person doing or causing the work to be done, or the holder of a permit if work is being stopped on a permit. For purposes of this section, service is complete at the time of posting or of personal service, or if mailed, three days after the date of mailing. When the last day of the period so computed is a Saturday, Sunday or city holiday, the period runs until 5 p.m. on the next business day.

**103.3.2 Effective date of stop work order.** Stop work orders are effective when posted, or if posting is not physically possible, when one of the persons identified in Section 103.3.1 is served.

**103.3.3 Review of stop work orders by the building official.**

**103.3.3.1 Request for review.** Any person aggrieved by a stop work order may obtain a review of the order by delivering to the building official a request in writing within two business days of the date of service of the stop work order.

**103.3.3.2 Review procedure.** The review shall occur within two business days after receipt by the building official of the request for review unless the requestor agrees to a longer time. Any person affected by the stop work order may submit additional information to the building official for consideration as part of the review at any time prior to the review. The review will be made by a representative of the building official who will review all additional information received and may also request a site visit.

**103.3.3.3 Decision.** After the review, the building official may:

- a. Sustain the stop work order;

- b. Withdraw the stop work order;
- c. Modify the stop work order; or
- d. Continue the review to a date certain.

**103.3.3.4 Order.** The building official shall issue an order of the building official containing the decision within two business days after the review and shall cause the order to be sent by first class mail to the person or persons requesting the review, any person on whom the stop work order was served, and any other person who requested a copy before issuance of the order.

**103.4 Occupancy violations.** Whenever any building or structure is being occupied contrary to the provisions of this code, the building official may order such occupancy discontinued and the building or structure, or portion thereof, vacated by notice.

**103.4.1 Service of notice of occupancy violation.** The notice shall be served by personal service or regular first class mail addressed to the last known address of the occupant of the premises or any person causing such occupancy. If no address is available after reasonable inquiry, the notice may be served by posting it in a conspicuous place on the premises.

**103.4.2 Compliance with notice of occupancy violation.** Any person occupying the building or structure shall discontinue the occupancy by the date specified in the notice of the building official, or shall make the building or structure, or portion thereof, comply with the requirements of this code; provided, however, that in the event of an unsafe building, Section 102 may apply.

1 **103.5 Civil penalties.** Any person violating or failing to comply with the provisions of this code  
2 shall be subject to a cumulative civil penalty in an amount not to exceed \$500 per day for each  
3 violation from the date the violation occurs or begins until compliance is achieved. In cases  
4 where the building official has issued a notice of violation, the violation will be deemed to begin,  
5 for purposes of determining the number of days of violation, on the date compliance is required  
6 by the notice of violation.  
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8 **103.6 Enforcement in Municipal Court.** Civil actions to enforce Title 22 of the Seattle  
9 Municipal Code (SMC) shall be brought exclusively in Seattle Municipal Court, except as  
10 otherwise required by law or court rule. In any civil action for a penalty, the City has the burden  
11 of proving by a preponderance of the evidence that a violation exists or existed; the issuance of a  
12 notice of violation or of an order following a review by the building official is not itself evidence  
13 that a violation exists.  
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15 **103.7 Judicial review.** Because civil actions to enforce Title 22 SMC must be brought  
16 exclusively in Seattle Municipal Court pursuant to Section 103.6, orders of the building official  
17 including Notices of Violation issued under this chapter are not subject to judicial review  
18 pursuant to Chapter 36.70C RCW.  
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20 **103.8 Alternative criminal penalty.** Anyone who violates or fails to comply with any notice of  
21 violation or order issued by the building official pursuant to this code or who removes, mutilates,  
22 destroys or conceals a notice issued or posted by the building official shall, upon conviction  
23 thereof, be punished by a fine of not more than \$5000 or by imprisonment for not more than 365  
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1 days, or by both such fine and imprisonment for each separate violation. Each day's violation  
2 shall constitute a separate offense.

3 **103.9 Additional relief.** The building official may seek legal or equitable relief to enjoin any  
4 acts or practices and abate any condition when necessary to achieve compliance.

5 **103.10 Administrative Review.**

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7 **103.10.1 Administrative review by the building official.** Applicants may request  
8 administrative review by the building official of decisions or actions pertaining to the  
9 administration and enforcement of this code. Requests shall be addressed to the building official.

10 **103.10.2 Administrative review by the Construction Codes Advisory Board.** Applicants  
11 may request review of decisions or actions pertaining to the application and interpretation of  
12 this code by the Construction Codes Advisory Board (CCAB), except for stop work orders,  
13 notices of violations and revocations of permits. The review will be performed by three or  
14 more members of the Construction Codes Advisory Board, chosen by the Board Chair. The  
15 Chair shall consider the subject of the review and members' expertise when selecting  
16 members to conduct a review. The decision of the review panel is advisory only; the final  
17 decision is made by the building official.  
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20 **103.11 Recording of notices.** The building official may record a copy of any order or notice  
21 with the Department of Records and Elections of King County.  
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23 **103.12 Appeal to Superior Court.** Final decisions of the Seattle Municipal Court on  
24 enforcement actions authorized by Title 22 and this code may be appealed pursuant to the Rules  
25 for Appeal of Decisions of Courts of Limited Jurisdiction.  
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## SECTION 104

### ORGANIZATION AND DUTIES

**104.1 Jurisdiction of Department of Planning and Development.** The Department of Planning and Development is authorized to administer and enforce this code. The Department of Planning and Development is under the administrative and operational control of the Director, who is the building official.

**104.2 Designees.** The building official may appoint such officers, inspectors, assistants and employees as shall be authorized from time to time. The building official may authorize such employees and other agents as may be necessary to carry out the functions of the building official.

**104.3 Right of entry.** With the consent of the owner or occupier of a building or premises, or pursuant to a lawfully issued warrant, the building official may enter a building or premises at any reasonable time to perform the duties imposed by this code.

**104.4 Modifications.** The building official may modify the requirements of this code for individual cases provided the building official finds: (1) there are practical difficulties involved in carrying out the provisions of this code; (2) the modification is in conformity with the intent and purpose of this code; and (3) the modification will provide a reasonable level of strength, effectiveness, fire resistance, durability, safety and sanitation when considered together with other safety features of the building or other relevant circumstances. The building official may,

1 but is not required to, record the approval of modifications and any relevant information in the  
2 files of the building official or on the approved construction documents.

3 **104.5 Alternate materials, methods of construction and design.** This code does not prevent  
4 the use of any material, design or method of construction not specifically allowed or prohibited  
5 by this code, provided the alternate has been approved and its use authorized by the building  
6 official. The building official may approve an alternate, provided the building official finds that  
7 the proposed alternate complies with the provisions of this code and that the alternate, when  
8 considered together with other safety features of the building or other relevant circumstances,  
9 will provide at least an equivalent level of strength, effectiveness, fire resistance, durability,  
10 safety and sanitation. Certain code alternates have been pre-approved by the building official and  
11 are identified in this code as numbered code alternates. The building official may require that  
12 sufficient evidence or proof be submitted to reasonably substantiate any claims regarding the use  
13 or suitability of the alternate. The building official may, but is not required to, record the  
14 approval of code alternates and any relevant information in the files of the building official or on  
15 the approved construction documents.

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19 **104.6 Tests.** Whenever there is insufficient evidence of compliance with any of the provisions of  
20 this code or evidence that any material or construction does not conform to the requirements of  
21 this code, the building official may require tests as proof of compliance to be made at no expense  
22 to the City. Test methods shall be specified by this code or by other recognized test standards. If  
23 there are no recognized and accepted test methods for the proposed alternate, the building official  
24 shall determine the test procedures. All tests shall be made by an approved agency. Reports of  
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1 such tests shall be retained by the building official for the period required for retention of public  
2 records.

3 **104.7 Rules of the building official.**

4 **104.7.1 Authority.** The building official has authority to issue interpretations of this code  
5 and to adopt and enforce rules and regulations supplemental to this code as may be deemed  
6 necessary in order to clarify the application of the provisions of this code. Such  
7 interpretations, rules and regulations shall be in conformity with the intent and purpose of  
8 this code.  
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10 **104.7.2 Procedure.** The building official shall promulgate, adopt and issue rules according  
11 to the procedures specified in the Administrative Code, Chapter 3.02 of the Seattle Municipal  
12 Code.  
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14 **104.8 Liability.**

15 **104.8.1** Nothing in this code is intended to be nor shall be construed to create or form the  
16 basis for any liability on the part of the City, or its officers, employees or agents, for any  
17 injury or damage resulting from the failure of a building to conform to the provisions of this  
18 code, or by reason or as a consequence of any inspection, notice, order, certificate, permission  
19 or approval authorized or issued or done in connection with the implementation or  
20 enforcement of this code, or by reason of any action or inaction on the part of the City related  
21 in any manner to the enforcement of this code by its officers, employees or agents.  
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23 **104.8.2** This code shall not be construed to relieve or lessen the responsibility of any person  
24 owning, operating or controlling any building or structure for any damages to persons or  
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property caused by defects, nor shall the Department of Planning and Development or the City of Seattle be held to have assumed any such liability by reason of the inspections authorized by this code or any permits or certificates issued under this code.

#### **104.9 Responsibilities of parties.**

**104.9.1 Responsibility for compliance.** Compliance with the requirements of this code is the obligation of the owner of the building, structure, or premises, the duly authorized agent of the owner, and other persons responsible for the condition or work, and not of the City or any of its officers employees or agents.

**104.9.2 Responsibilities of registered design professional in responsible charge.** It is the responsibility of the *registered design professional in responsible charge* to ensure that the information in the construction documents is complete, accurate, and, to the best of the design professional's knowledge, conforms to the requirements of this code.

**104.9.3 Responsibilities of structural engineer in responsible charge.** It is the responsibility of the *structural engineer in responsible charge* to:

1. Design the primary structure;

**Exception:** A licensed engineer other than the structural engineer in responsible charge may design the primary structure of single-story metal buildings.

2. Specify design loads, configurations, controlling dimensions, deflection limits and/or other criteria necessary for the design of secondary structural components and sub-systems and the selection of structurally qualified products;



- 1        3. Determine the adequacy and conformance of the application of the structurally qualified  
2        products with the design intent of the City-approved construction documents;  
3        4. Review for compatibility with the City-approved construction documents previously  
4        approved by the building official, the deferred submittals for the primary structural frame  
5        and the design and deferred submittals for secondary members for the following structural  
6        elements:  
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8        Wood trusses	Glu-lam beams
9        Steel joists	Structural steel
10       Steel decking	Prefabricated stair systems
11       Precast concrete piles	Post-tensioned floor systems
12       Curtain wall systems	Precast prestressed planks
13       Major skylight frames	Precast concrete/masonry wall panels

15       The building official may approve additions to, or deletions from this list for specific  
16       projects. If there is no structural engineer in responsible charge on the project, the architect in  
17       responsible charge shall assume these responsibilities.  
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19       Note: "Primary structural frame" and "secondary member" are defined in Chapter 2.

20       **104.9.4 Responsibilities of contractor.** It is the responsibility of the contractor to perform  
21       all the work in conformance with the City-approved construction documents.  
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23       **104.9.5 Responsibilities of plans examiner.** It is the responsibility of the plans examiner to  
24       verify that the description of the work in the construction documents is substantially  
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complete, and to require corrections where, to the best of the plans examiner's knowledge, the construction documents do not conform to this code or other pertinent laws and ordinances.

**104.9.6 Responsibilities of field inspector.** It is the responsibility of the field inspector to conduct inspections to verify that the work in progress conforms with the approved construction documents and to require corrections where, to the best of the field inspector's knowledge, the work either does not conform to the construction documents or where the work is in violation of this code or other pertinent laws and ordinances.

## **SECTION 105**

### **CONSTRUCTION CODES ADVISORY BOARD**

**105.1 Establishment.** There is a "Construction Codes Advisory Board" ("Board") consisting of 13 voting members, appointed by the Mayor and subject to confirmation by the City Council. The Board membership consists of one representative of each of the following professions or organizations. The representative of a profession need not be a member of the profession but may be a representative of an organization of such professionals.

1 architect;

1 structural engineer;

1 electrical engineer;

1 heating, refrigeration and air-conditioning engineer;

1 general contractor;

1 electrical contractor;

1 commercial building owner or operator;

1 1 apartment building owner or operator;

2 1 developer and/or contractor of residential projects;

3 1 member of organized labor; and

4 3 members of the general public.

5 A representative of each of the following departments shall be ex officio, non-voting  
6 members of the Board:

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8 Seattle Fire Department;

9 Seattle City Light; and

10 Seattle-King County Department of Public Health.

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12 **105.2 Duties of Board.**

13 **105.2.1 General.** The Board shall act in an advisory capacity for all of its duties. The Board  
14 shall meet on call either by the building official or the Board Chair, subject to timely notice.

15 **105.2.2 Code adoption and amendment.** The Board may examine proposed new editions  
16 and amendments to the following codes and regulations listed in this section. The Board may  
17 make recommendations to the building official and to the City Council for adoption and  
18 amendment of these codes.  
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20 Seattle Building Code - Chapter 22.100 SMC\*

21 Seattle Residential Code – Chapter 22.150 SMC

22 Seattle Mechanical Code - Chapter 22.400 SMC

23 Seattle Fuel Gas Code - Chapter 22.420 SMC

24 Seattle Boiler Code - Chapter 22.450 SMC  
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1 Washington State Energy Code with Seattle Amendments - Chapter 22.700 SMC

2 Seattle Electrical Code - Chapter 22.300 SMC

3 Building Code-related provisions of the Housing and Building Maintenance Code -  
4 Chapter 22.206.

5 \* SMC is the Seattle Municipal Code.

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7 **105.2.3 Review of director's rules.** The Board may examine proposed administrative rules  
8 relating to the codes and regulations listed above and make recommendations to the building  
9 official.

10 **105.3 Organization.** The Board shall organize, and elect a chair and any other officers as may  
11 be established by the Board. The Board may adopt rules of procedure. There shall be a  
12 committee of the Board for each code assigned to its review. Committees shall consist of Board  
13 members and may include additional members such as other representatives of the general public  
14 and professions not specifically represented on the Board. Any non-Board members of  
15 committees shall be appointed by the Chair. The Chair may, from time to time, appoint special  
16 topic subcommittees.  
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19 **105.4 Terms of service.** Terms of Board members are three years, dating from the day of  
20 expiration of the preceding term; provided, a member whose term has expired shall continue to  
21 serve until a successor is appointed and confirmed. Terms on the Board shall be staggered so  
22 that the terms of not more than five positions expire concurrently. Vacancies shall be filled for  
23 any unexpired term in the same manner as the original appointment.  
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**105.5 Removal of Board member.** A member may be removed by the Mayor, subject to a majority vote of members of the City Council.

**105.6 Compensation of Board members.** No member shall receive any compensation for service on the Board.

## **SECTION 106**

### **BUILDING PERMITS**

**106.1 Permits required.** Except as otherwise specifically provided in this code, a building permit shall be obtained from the building official for each building or structure prior to erecting, constructing, enlarging, altering, repairing, moving, improving, removing, changing the occupancy of, or demolishing such building or structure, or allowing the same to be done. All work shall comply with this code, even where no permit is required.

**106.2 Work exempt from permit.** A building permit is not required for the work listed below. Exemption from the permit requirements of this code does not authorize any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of the City.

1. Minor repairs or alterations that, as determined by the building official, cost the owner \$4,000 or less in any six month period. Such repairs and alterations shall not include the removal, reduction, alteration, or relocation of any loadbearing support. Egress, light, ventilation, and fire-resistance shall not be reduced without a permit.
2. Minor work including the following, provided no changes are made to the building envelope: patio and concrete slabs on grade, painting or cleaning a building, repointing a chimney, installing kitchen cabinets, paneling or other surface finishes over existing wall

and ceiling systems applied in accordance with Chapter 8, insulating existing buildings, abatement of hazardous materials, demolition of nonstructural interior tenant improvements in retail and office uses, and in-kind or similar replacement of or repair of deteriorated members of a structure.

3. One-story detached accessory buildings used for greenhouse, tool or storage shed, playhouse, or similar uses, if:

- 3.1 The projected roof area does not exceed 120 square feet; and

- 3.2 The building is not placed on a concrete foundation other than a slab on grade.

4. Fences not over 8 feet high that do not have masonry or concrete elements above 6 feet.

5. Arbors and other open-framed landscape structures not exceeding 120 square feet in projected area.

6. Display cases, cabinets, counters and partitions not over 5 feet 9 inches high.

7. Retaining walls and rockeries which are not over 4 feet in height measured from the bottom of the footing to the top of the wall, if:

- 7.1 There is no surcharge or impoundment of Class I, II or III-A liquids.

- 7.2 Construction does not support soils in a steep slope area, potential landslide area or known slide area as identified in the Seattle Environmentally Critical Areas Ordinance Section 25.09.020 of the Seattle Municipal Code.

- 7.3 Possible failure would likely cause no damage to adjoining property or structures.

8. Platforms, walks and driveways not more than 18 inches above grade and not over any basement or story below.

- 1 9. Temporary motion picture, television and theater stage sets and scenery.
- 2 10. Window awnings supported by an exterior wall of Group R-3, and Group U occupancies
- 3 when projecting not more than 54 inches.
- 4 11. Prefabricated swimming pools, spas and similar equipment accessory to a Group R-3
- 5 occupancy in which the pool walls are entirely above the adjacent grade and if the
- 6 capacity does not exceed 5,000 gallons.
- 7 12. Replacement of roofing materials and siding. This shall not include structural changes,
- 8 replacement of sheathing or alterations to doors and windows. See Energy Code Sections
- 9 101.3.2.5 and 1132.1 for insulation requirements for existing buildings.
- 10 **Exception:** In detached one- and two- family dwellings, the existing roof sheathing may
- 11 be replaced and roof structure may be repaired without permit provided no changes are
- 12 made to the building envelope other than adding or replacing insulation, and the work is
- 13 equivalent to or better than the existing structure.
- 14 13. School, park or private playground equipment including tree houses.
- 15 14. Removal and/or replacement of underground storage tanks that are subject to regulation
- 16 by a state or federal agency.

17 **Note:** A Fire Department permit is required for removal, replacement and

18 decommissioning of underground storage tanks.

19

- 20 15. Installation of dish and panel antennas 6.56 feet (2 m) or less in diameter or diagonal
- 21 measurement.
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**106.3 Other permits required.** Unless otherwise exempted by this or other pertinent codes, separate master use, plumbing, electrical and mechanical permits may be required for the above exempted items.

**106.4 Flood hazard areas.** In addition to the permit required by this section, all work to be performed in areas of special flood hazard, as defined in Seattle Municipal Code Chapter 25.06, are subject to additional standards and requirements, including floodplain development approval or a Floodplain Development License, as set forth in Chapter 25.06, the Seattle Floodplain Development Ordinance.

**106.5 Application for permit.**

**106.5.1 Application.** To obtain a permit, the applicant shall first file an application in writing on a form furnished by the building official or in another format determined by the building official. Every such application shall:

1. Identify and describe the work to be covered by the permit for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, property address or similar description that will readily identify and definitely locate the proposed building or work.
3. Provide contractor's business name, address, phone number and current contractor registration number (required if contractor has been selected).
4. Be accompanied by construction documents, including plans and other data as required in Section 106.5.2.



- 1           5. State the valuation of any new building or structure or any addition, remodeling or
- 2           alteration to an existing building including cost breakdown between additions and
- 3           alterations.
- 4           6. Be signed by the owner of the property or building, or the owner's authorized agent,
- 5           who may be required to submit evidence to indicate such authority.
- 6           7. Give such other data and information as may be required by the building official,
- 7           including, but not limited to, master use and shoreline permits and building
- 8           identification plans.
- 9           8. Indicate the name of the owner and contractor and the name, address and phone
- 10          number, of a contact person.
- 11          9. Substantially conform with the Land Use Code, critical areas regulations and building
- 12          code regulations in effect on the date the application is submitted.
- 13          10. Applications that include a grading component shall include all information
- 14          prescribed by the Grading Code and rules adopted thereunder, and all additional
- 15          information required by the building official pursuant to the Grading Code and rules
- 16          adopted thereunder.
- 17          10. Applications that include a grading component shall include all information
- 18          prescribed by the Grading Code and rules adopted thereunder, and all additional
- 19          information required by the building official pursuant to the Grading Code and rules
- 20          adopted thereunder.

#### 21       **106.5.2 Construction documents.**

22               **106.5.2.1 General.** Construction documents shall be submitted in two or more sets with  
23               each application for a permit, or shall be submitted in electronic format determined by the  
24               building official. Computations, stress diagrams, shop and fabrication drawings and other

1 data sufficient to show the adequacy of the plans shall be submitted when required by the  
2 building official.

3 **Exception:** The building official may waive the submission of construction  
4 documents, if the building official finds that the nature of the work applied for is  
5 such that reviewing of construction documents is not necessary to obtain compliance  
6 with this code.  
7

8 **106.5.2.2 Preparation by registered design professionals.** Construction documents for  
9 all work shall be prepared and designed by or under the direct supervision of an architect  
10 or structural engineer licensed to practice under the laws of the State of Washington.  
11 Each sheet of construction documents shall bear the seal and the signature of the  
12 registered design professional before the permit is issued.  
13

14 **Exceptions:**

15 1. Construction documents for work not involving structural design are permitted to  
16 be prepared by a registered professional engineer or registered architect qualified in  
17 the proposed work.  
18

19 2. When authorized by the building official, construction documents for assembly  
20 line products or designed specialty structural products may be designed by a  
21 registered professional engineer.  
22

23 3. When authorized by the building official, construction documents need not be  
24 prepared by an engineer or architect licensed by the State of Washington for the  
25 following:  
26  
27  
28

3.1. Detached one- and two-family dwellings.

3.2 New buildings or structures, and additions, alterations or repairs made to them of conventional light frame construction, having a total valuation of less than \$30,000.

3.3. Nonstructural alterations and repairs having a total valuation of less than \$30,000, excluding the value of electrical and mechanical systems, fixtures, equipment, interior finish and millwork.

3.4. Other work as specified in rules promulgated by the building official.

**106.5.2.3 Information required on construction documents.** Construction documents shall include the following, as applicable:

1. A plot plan showing the width of streets, alleys, yards and courts.
2. The location (and/or location within a building), floor area, story, height, type of construction and occupancy classification as defined by the Building Code and use as defined by the Land Use Code of the proposed building and of every existing building on the property.
3. Where there are more than two buildings located on a property, a building identification plan identifying the location of each building on the property and identifying each building by a numbering system unrelated to address. Such plan is not required where a plan for the site is already on file and no new buildings are being added to the site.
4. Types of heating and air conditioning systems.

- 1           5. Architectural plans, including floor plans, elevations and door and finish  
2           schedules showing location of all doors, windows, mechanical equipment, shafts,  
3           pipes, vents and ducts. Fire walls, fire barriers, fire partitions, smoke barriers and  
4           smoke partitions or any other wall or horizontal assembly required to have  
5           protected openings or penetrations shall be identified on the architectural plans.  
6
- 7           6. Structural plans, including foundation plan and framing plans.
- 8           7. Cross-sections and construction details for both architectural and structural plans  
9           including wall sections, foundation, floor and roof details, connections of  
10          structural members and types of construction material.  
11
- 12          8. Topographic plans, including original and final contours, location of all buildings  
13          and structures on the site and, when required by the building official, adjacent to  
14          the site, and cubic yards of cut and fill.
- 15          9. If the building official has reason to believe that there may be an intrusion into  
16          required open areas or over the property line, a survey of the property prepared by  
17          a land surveyor licensed by the State of Washington is required for new  
18          construction, and for additions or accessory buildings.  
19
- 20          10. If any building or structure is to be erected or constructed on property abutting an  
21          unimproved or partially improved street or alley, the plans shall also include a  
22          profile showing the established or proposed grade of the street or alley, based  
23          upon information obtained from the Director of Transportation relating to the  
24          proposed finished elevations of the property and improvements thereon.  
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**106.5.2.4 Information on first sheet.** The first or general note sheet of each set of plans shall specify the following, as applicable:

1. The building and street address of the work.
2. The name and address of the owner and person who prepared the plans.
3. Legal description of the property.
4. Type of occupancy of all parts of the building(s) as defined in this code, including notation of fixed fire protection devices or systems.
5. Zoning classification of the property and existing and proposed uses of the structure(s) as defined in the Land Use Code.
6. Indication of location within the fire district as defined in this code, if applicable.
7. Type of construction as defined in this code.
8. Number of stories and basements as defined in this code.
9. Variances, conditional uses, special exceptions, including project numbers, approval and approval extension dates.
10. Where applicable, a description of the design selected and approved at a Section 403 high-rise building pre-design conference, a Section 404 atrium pre-design conference, a Section 414.1.4 hazardous occupancy pre-design conference, a Section 1613.1.1 seismic design pre-design conference or a similar conference on a building subject to Fire Code Chapter 93.

**106.5.2.5 Structural notes.** Plans shall include applicable information including, but not limited to, the following:

1. Design loads: Snow load, live loads and lateral loads. If required by the building official, the structural notes for plans engineered to Chapter 9 of ASCE 7 shall include the factors of the base shear formula used in the design;
2. Foundations: Foundation investigations, allowable bearing pressure for spread footings, allowable load capacity of piles, lateral earth pressure;
3. Masonry: Type and strength of units, strength or proportions of mortar and grout, type and strength of reinforcement, method of testing, design strength;
4. Wood: Species or species groups, and grades of sawn lumber, glued-laminated lumber, plywood and assemblies, type of fasteners;
5. Concrete: Design strengths, mix designs, type and strength of reinforcing steel, welding of reinforcing steel, restrictions, if any;
6. Steel and aluminum: Specification types, grades and strengths, welding electrode types and strengths;
7. Special inspections required by Chapter 17;

In lieu of detailed structural notes the building official may approve minor references on the plans to a specific section or part of this code or other ordinances or laws.

**106.5.2.6 Fire-resistive notes.** The building official may require that plans for buildings more than two stories in height of other than Groups R-3 and U occupancies indicate how required structural and fire-resistive integrity will be maintained where a penetration will be made for electrical, mechanical, plumbing and communication conduits, pipes and similar systems.

1           The building official may require that, when required for fire-resistive construction,  
2           the method of installation of wall and ceiling coverings and the protection of structural  
3           parts be specified on the plans unless the listing that documents the rating specifies a  
4           method no more restrictive than the minimum standards of Chapter 7.

5           **106.5.3 Deferred submittals.** Deferral of any submittal items shall have the prior approval of  
6           the building official. The registered design professional in responsible charge shall list  
7           deferred submittals on the plans for review by the building official.

8           Documents for deferred submittal items shall be submitted to the registered design  
9           professional in responsible charge who shall review them and forward them to the building  
10          official with a notation indicating that the deferred submittal documents have been reviewed  
11          and been found to be in general conformance to the design of the building. The deferred  
12          submittal items shall not be installed until the deferred submittal documents have been  
13          approved by the building official.

14          **106.5.4 Clarity of plans.** Plans shall be drawn to a clearly indicated and commonly accepted  
15          scale upon substantial paper such as blueprint quality or standard drafting paper. Tissue  
16          paper, posterboard or cardboard will not be accepted. The plans shall be of microfilm quality  
17          and are limited to a minimum size of 18 inches by 18 inches and a maximum size of 41  
18          inches by 54 inches.

19          **Exceptions:**

1. The plans for metal plate connected wood trusses may be not less than 8-1/2 inches by 11 inches for single family structures and no less than 11 inches by 17 inches for all other structures.
2. Plans may be submitted in electronic format as determined by the building official.

#### **106.6 Application review and permit issuance.**

**106.6.1 General.** The construction documents shall be reviewed by the building official. Such construction documents may be reviewed by other departments of the City to check compliance with the laws and ordinances under their jurisdiction.

**106.6.2 Determination of completeness.** Within 28 days after an application is filed, the building official shall notify the applicant in writing either that the application is complete or that it is not complete, and if not complete, what additional information is required to make it complete. Within 14 days after receiving the additional information, the building official shall notify the applicant in writing whether the application is now complete or what additional information is necessary. An application shall be deemed to be complete if the building official does not notify the applicant in writing by the deadlines in this section that the application is incomplete.

#### **106.6.3 Decision and issuance of permit.**

**106.6.3.1 Decision on application.** Except as provided in Section 106.6.7, the building official shall approve, condition or deny the application within 120 days after the building official notifies the applicant that the application is complete. To determine the number of



days that have elapsed after the notification that the application is complete, the following periods shall be excluded:

1. All periods of time during which the applicant has been requested by the Director to correct plans, perform required studies, or provide additional required information, until the determination that the request has been satisfied. The period shall be calculated from the date the building official notifies the applicant of the need for additional information until the earlier of the date the building official determines whether the additional information satisfies the request for information or 14 days after the date the information has been provided to the building official.

2. If the building official determines that the information submitted by the applicant under item 1 of this subsection is insufficient, the building official shall notify the applicant of the deficiencies, and the procedures under item 1 of this subsection shall apply as if a new request for information had been made;

3. All extensions of time mutually agreed upon by the applicant and the building official.

If a project permit application is substantially revised by the applicant, the time period shall start from the date at which the revised project application is determined to be complete under Section 101.3.1.

**106.6.3.2 Issuance of permit.** The building official shall issue a permit to the applicant, if the building official finds that the work as described in the construction documents satisfies the following:

1 1. It conforms to the requirements of this code and other pertinent laws, ordinances, and  
2 regulations and with all conditions imposed under any of them,

3 2. The fees specified in the Fee Subtitle have been paid, and

4 3. The applicant has complied with all requirements to be performed prior to issuance of a  
5 permit for the work under other pertinent laws, ordinances or regulations or included in a  
6 master use permit, or otherwise imposed by the building official.  
7

8 When the permit is issued, the applicant or the applicant's authorized agent becomes the  
9 permit holder.

10 **106.6.4 Phased permits.**

11 1. The building official may issue a permit for the construction of part of a building or  
12 structure before complete construction documents for the whole building or structure have  
13 been submitted or approved, or before the applicant has complied with all conditions of a  
14 building permit for the entire structure under the Land Use Code or master use permit, if the  
15 proposed project complies with applicable provisions of this code and all applicable laws,  
16 including but not limited to all conditions imposed under the State Environmental Policy Act  
17 and regulations thereunder adopted by the City (Chapter 25.05 Seattle Municipal Code) as  
18 amended and with the Land Use Code, as amended and all conditions imposed thereunder  
19 and; and if the construction documents demonstrate compliance with all pertinent  
20 requirements of this and other pertinent codes. The holder of such a permit shall proceed at  
21 the permit holder's risk without assurance that a permit for the entire building or structure  
22 will be granted.  
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1       2. After approval of a Master Use Permit as required by the Land Use Code, if the applicant  
2       has satisfied all applicable requirements for issuance of a grading permit under the Grading  
3       Code and rules adopted thereunder, a permit for excavation, shoring and other land-  
4       disturbing activity may be issued.

5       The grading component of the permit is the portion of a permit that authorizes activity  
6       subject to the requirements of a grading permit under the Grading Code and constitutes a  
7       grading permit. The grading component and work thereunder are subject to the provisions of  
8       the Grading Code except as otherwise provided in the Grading Code.

9  
10       **106.6.5 Permit conditions and denial.** The building official may impose on a permit any  
11       conditions authorized by this code or other pertinent ordinances or regulations, including but  
12       not limited to the Grading Code, the Stormwater Code, Regulations for Environmentally  
13       Critical Areas, and rules adopted under any of them. In addition, the building official may  
14       condition a permit in order to reduce the risks associated with development, construction,  
15       ownership and occupancy including, but not limited to risks in potential slide areas. The  
16       building official may deny a permit if the building official determines that the risks cannot be  
17       reduced to an acceptable level; or if the proposed project or construction documents do not  
18       conform to the requirements of this code or those of other pertinent laws, ordinances or  
19       regulations, or do not conform to requirements included the Master Use Permit or otherwise  
20       imposed by the building official or other City department; or if the applicant fails to comply  
21       with any requirement or condition under any of the foregoing.  
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1       **106.6.6 Compliance with approved construction documents.** When the building official  
2 issues a permit, the building official shall endorse the permit in writing or in electronic  
3 format, and stamp the plans APPROVED. Such approved plans and permit shall not be  
4 changed, modified or altered without authorization from the building official, and all work  
5 shall be done in accordance with the approved construction documents and permit except as  
6 the building official may require during field inspection to correct errors or omissions.  
7

8       **106.6.7 Amendments to the permit.** When changes to the approved work are made during  
9 construction, approval of the building official shall be obtained prior to execution. The  
10 building inspector may approve minor changes to the construction documents for work not  
11 reducing the structural strength or fire and life safety of the structure. The building inspector  
12 shall determine if it is necessary to revise the approved construction documents. No changes  
13 that are subject to special inspection required by Section 1704 shall be made during  
14 construction unless approved by the building official. If revised plans are required, changes  
15 shall be shown on two sets of plans that shall be submitted to and approved by the building  
16 official, accompanied by fees specified in the Fee Subtitle prior to occupancy. All changes  
17 shall conform to the requirements of this code and other pertinent laws and ordinances and  
18 other issued permits.  
19  
20

21       **106.6.8 Cancellation of permit applications.** Applications may be cancelled if no permit is  
22 issued by the earlier of the following: (1) twelve months following the date of application; or  
23 (2) sixty days from the date of written notice that the permit is ready to issue. After  
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1 cancellation, construction documents submitted for review may be returned to the applicant  
2 or destroyed by the building official.

3 The building official will notify the applicant in writing at least thirty days before the  
4 application is cancelled. The notice shall specify a date by which a request for extension  
5 must be submitted in order to avoid cancellation. The date shall be at least two weeks prior  
6 to the date on which the application will be cancelled.  
7

8 **106.6.9 Extensions prior to permit issuance.**

9 **106.6.9.1** At the discretion of the building official, applications for projects that require  
10 more than 12 months to review and approve may be extended for a period that provides  
11 reasonable time to complete the review and approval, but in no case longer than 24 months  
12 from the date of the original application. No application may be extended more than once.  
13 After cancellation, the applicant shall submit a new application and pay a new fee to restart  
14 the permit process.  
15

16 **106.6.9.2** Notwithstanding other provisions of this code, applications may be extended  
17 where issuance of the permit is delayed by litigation, preparation of environmental impact  
18 statements, appeals, strikes or other causes related to the application that are beyond the  
19 applicant's control, or while the applicant is making progress toward issuance of a master use  
20 permit.  
21

22  
23 **106.7 Retention of plans.** One set of approved plans, which may be on microfilm or in  
24 electronic format, shall be retained by the building official. One set of approved plans shall be  
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1 returned to the applicant and shall be kept at the site of the building or work for use by inspection  
2 personnel at all times during which the work authorized is in progress.

3 **106.8 Validity of permit.** The issuance or granting of a permit or approval of construction  
4 documents shall:

- 5 1. not be construed to be a permit for, or an approval of, any violation of any of the provisions  
6 of this code or other pertinent laws and ordinances;
- 7 2. not prevent the building official from requiring the correction of errors in the construction  
8 documents or from preventing building operations being carried on thereunder when in  
9 violation of this code or of other pertinent laws and ordinances of the City;
- 10 3. not prevent the building official from requiring correction of conditions found to be in  
11 violation of this code or other pertinent laws and ordinances of the City; or
- 12 4. not be construed to extend the period of time for which any such permit is issued or  
13 otherwise affect any period of time for compliance specified in any notice or order issued by  
14 the building official or other administrative authority requiring the correction of any such  
15 conditions.

16 **106.9 Expiration of permits.** Authority to do the work authorized by a permit or a renewed  
17 permit expires 18 months from the date of issuance.

18 **Exceptions:**

- 19 1. Initial permits for major construction projects that require more than 18 months to  
20 complete, according to a construction schedule submitted by the applicant, may be

issued for a period that provides reasonable time to complete the work but in no case longer than three years.

2. The building official may issue permits which expire in less than eighteen months if the building official determines a shorter period is appropriate to complete the work.

**106.10 Renewal of permits.** Permits may be renewed and renewed permits may be further renewed by the building official if the following conditions are met:

1. Application for renewal is made within the 30 day period immediately preceding the date of expiration of the permit; and
2. If the project has had an associated discretionary Land Use review, and the land use approval has not expired per Seattle Municipal Code 23.76. 032; and
3. If an application for renewal is made either more than 18 months after the date of mandatory compliance with a new or revised edition of the Building Code or after the effective date of an amendment to applicable provisions of the Land Use Code or the Environmentally Critical Areas Ordinance (Chapter 25.09 of the Seattle Municipal Code), the permit shall not be renewed unless:

3.1 The building official determines that the permit complies, or is modified to comply, with the code or codes in effect on the date of application renewal; or

3.2 The work authorized by the permit is substantially underway and progressing at a rate approved by the building official. "Substantially underway" means that work such as excavation, inspections, and installation of framing, electrical, mechanical and finish work is being completed on a continuing basis; and

- 1 4. Commencement or completion of the work authorized by the permit is delayed by  
2 litigation, appeals, strikes or other causes related to the work authorized by the permit,  
3 beyond the permit holder's control if application for renewal is made within the 30 day  
4 period immediately preceding the date of expiration of the permit.

5 **106.11 Reestablishment.** A new permit is required to complete work if a permit has expired and  
6 was not renewed.

7  
8 **Exception:** A permit that expired less than one year prior to the date of a request for  
9 reestablishment may be reestablished upon approval of the building official if it complies  
10 with Section 106.10, Items 2 and 3, or Item 4 above.

11  
12 **106.12 Revocation of building permits.**

13 **106.12.1. Notice of revocation.** Whenever the building official determines there are grounds  
14 for revoking a permit, the building official may issue a notice of revocation. The notice of  
15 revocation shall identify the reason for the proposed revocation, including the violations, the  
16 conditions violated, and any alleged false or misleading information provided.

17  
18 **106.12.2 Standards for revocation.** The building official may revoke a permit if:

- 19 1. The code or the building permit has been or is being violated and issuance of a  
20 notice of violation or stop work order has been or would be ineffective to secure  
21 compliance because of circumstances related to the violation; or  
22  
23 2. The permit was obtained with false or misleading information.

24 **106.12.3 Service of notice of revocation.** The notice of revocation shall be served on the  
25 owner of the property on which the work is occurring, the holder of a permit if different than  
26



1 the owner, and the person doing or causing the work to be done. The notice of revocation  
2 shall be served in the manner set forth in RCW 4.28.080 for service of a summons or sent by  
3 first class mail to the last known address of the responsible party. For purposes of this  
4 section, service is complete at the time of personal service, or if mailed, three days after the  
5 date of mailing. When the last day of the period so computed is a Saturday, Sunday or City  
6 holiday, the period runs until 5 p.m. on the next business day.

8 **106.12.4 Effective date of revocation.** The building official shall identify in the notice of  
9 revocation a date certain on which the revocation will take effect. This date may be stayed  
10 pending complete review by the building official pursuant to Section 106.12.5.

12 **106.12.5 Review by the building official for notice of revocation.**

13 **106.12.5.1 Request for review.** Any person aggrieved by a notice of revocation may  
14 obtain a review by making a request in writing to the building official within three  
15 business days of the date of service of the notice of revocation. The review shall occur  
16 within five business days after receipt by the building official of the request for review.

18 Any person affected by the notice of revocation may submit additional information to the  
19 building official for consideration as part of the review at any time prior to the review.

20 **106.12.5.2 Conduct of review.** The review will be made by a representative of the  
21 building official who will review all additional information received and may also request  
22 a site visit. After the review, the building official may:

- 24 1. Sustain the notice of revocation and affirm or modify the date the revocation will  
25 take effect;

2. Withdraw the notice of revocation;

3. Modify the notice of revocation and affirm or modify the date the revocation will take effect; or

4. Continue the review to a date certain.

**106.12.5.3 Order of revocation of permit.** The building official shall issue an order of the building official containing the decision within ten days after the review and shall cause the same to be sent by first class mail to the person or persons requesting the review, any other person on whom the notice of revocation was served, and any other person who requested a copy before issuance of the order. The order of the building official is the final order of the City, and the City and all parties shall be bound by the order.

**106.13 Permits and certificates of occupancy for temporary structures.**

**106.13.1 Tents and similar facilities.** The building official may issue a nonrenewable permit and certificate of occupancy to erect and maintain for a period not to exceed six months, a tent or other temporary structure to be used for religious services, conventions, circuses, carnivals, fairs, special sales or similar uses.

**Exception:** Authority to issue permits is vested with the Fire Department for temporary tents and canopies meeting all of the following conditions:

1. The permit is for less than four weeks;

2. The temporary structure will be located 200 feet or more from shorelines;

3. No stage, platform, bleacher or similar structure greater than 4 feet in height will be installed inside any temporary structure;
4. No temporary structure will be attached to a building or other permanent structure for support;
5. The temporary permit does not propose foul-weather use, or a structure of unusual shape, unusual location or large area or height.

**Note:** The Land Use and Fire codes may impose additional restrictions or conditions on tents and temporary structures.

**106.13.1.1 Removal of tents and similar facilities.** Such structures shall be removed before the expiration of the six-month period specified on the certificate of occupancy.

**106.13.1.2 Requirements for tents and similar facilities** The construction of the structure shall be subject to such reasonable safeguards for persons and property as the building official prescribes. The nature and extent of fire-extinguishing equipment and decorations shall be subject to the requirements of the fire chief, and the sanitary facilities shall meet the requirements of the Director of Public Health.

**106.13.1.3 Cash deposit or bond.** The building official may require that removal of the structure be guaranteed by a cash deposit with the building official or by a surety bond, the amount of which, in either case, shall be fixed by the building official. The cash deposit or bond shall also be conditioned so that, if the occupant or owner fails to conform to any of the requirements of the City related to the erection, maintenance or removal of the tent or other structure, officers of the City may enter the premises and take steps necessary to make the

1 structure conform to the requirements. The City shall be permitted to recover the cost thereof  
2 from the cash deposit or bond.

3 **106.13.2 Temporary structures.** Temporary structures such as reviewing stands and other  
4 structures conforming to the requirements of this code, and sheds, canopies, or fences used  
5 for the protection of the public around and in conjunction with construction work may be  
6 erected by special permit from the building official for a limited period of time. The building  
7 or structure shall be subject to the bonding, removal and safety provisions of Section  
8 106.13.1. Temporary buildings or structures in the right-of-way are regulated by the Director  
9 of Transportation.  
10

11 **106.13.3 Temporary office trailers.** The building official may issue a building/use permit  
12 and certificate of occupancy for eighteen months for the installation of a commercial coach or  
13 modular home as a temporary office or other use as may be determined by the building  
14 official, subject to the following:  
15

- 16 1. The commercial coach shall be identified by a State of Washington black sticker  
17 located by the door. The structure may be placed on a temporary foundation and shall  
18 be anchored to resist wind and seismic lateral forces.  
19
- 20 2. The modular home shall be identified by a State of Washington gold sticker located  
21 by the door. Modular homes shall be permitted only if no heavy storage is anticipated  
22 for the temporary office use. The structure may be placed on a temporary foundation  
23 and shall be anchored to resist wind and seismic lateral forces.  
24  
25  
26  
27  
28

1           3. A plot plan shall be submitted to verify compliance with the Land Use Code and to  
2           check exposure to other buildings.

3           4. The proposed use must be permitted outright under the Land Use Code and comply  
4           with all other pertinent laws and ordinances.

5           5. Construction offices, dry shacks and similar temporary buildings are regulated by  
6           Section 106.13.4.

7  
8           **106.13.3.1 Renewal of temporary office trailer permits.** A subsequent permit and  
9           certificate of occupancy for another 18 months may be issued at the end of each 18 month  
10          period if the building official determines that the commercial coach or modular home  
11          complies with this section.

12  
13          **106.13.4 Construction buildings.** The building official may issue a permit to erect and  
14          maintain construction offices, dry shacks and similar temporary buildings, including material  
15          and equipment storage, all for the purpose of constructing an improvement.

16               **Exception:** A temporary permit is not required for construction offices and similar  
17               temporary buildings located on the same premises for which a construction permit has  
18               been issued.

19  
20          **106.13.4.1 Removal of construction buildings.** Such structures shall be removed within 14  
21          days after the end of the temporary permit's term. Removal shall be guaranteed by a cash  
22          deposit with the building official or by a surety bond, the amount of which, in either case,  
23          shall be fixed by the building official.

**106.13.4.2 Requirements for construction buildings.** The construction of the structure shall be subject to reasonable safeguards for persons and property as the building official shall prescribes; the nature and extent of fire-extinguishing equipment shall be subject to the requirements of the fire chief, and the sanitary facilities shall meet the requirements of the Director of Public Health.

**106.13.4.3 Cash deposit or bond.** The cash deposit or bond shall be conditioned so that, if the occupant or owner fails to conform to any of the requirements of the City related to the erection, maintenance or removal of the tent or other structure, officers of the City may enter the premises and take steps necessary to make the structure conform to the requirements. The City shall be permitted to recover the cost thereof from the cash deposit or bond.

## **SECTION 107**

### **FLOOR AND ROOF DESIGN LOADS**

**107.1 Live loads posted.** Where the live loads for which each floor or portion thereof of a commercial or industrial building is or has been designed to exceed 125 pounds per square foot and for all warehouse and storage areas, such design live loads shall be conspicuously posted by the owner in that part of each story in which they apply, using durable signs. It shall be unlawful to remove or deface such notices.

**107.2 Issuance of certificate of occupancy.** A certificate of occupancy required by Section 109 shall not be issued until the floor load signs, required by Section 107.1, have been installed.

**107.3 Restrictions on loading.** It shall be unlawful to place, or cause or permit to be placed, on any floor or roof of a building, structure or portion thereof, a load greater than is permitted by this code.

## **SECTION 108**

### **INSPECTIONS**

**108.1 General.** All construction or work for which a permit is required is subject to inspection by the building official, and certain types of construction shall have special inspections by registered special inspectors as specified in Chapter 17.

**108.2 Surveys.** A survey of the lot may be required by the building official to verify compliance of the structure with approved construction documents.

**108.3 Preconstruction conferences.** When required by the building official, the owner or the owner's agent shall arrange a conference with the project contractor, the design team, the special inspection agency if special inspection is required, and the building official prior to commencing work on any portion of construction. The intent of the conference is to identify and clarify unusual inspection requirements of the project. See Section 1703.8 for preconstruction conferences for projects requiring special inspection.

**108.4 Inspection requests.** The owner of the property or the owner's authorized agent, or the person designated by the owner/agent to do the work authorized by a permit shall notify the building official that work requiring inspection as specified in this section and Chapter 17 is ready for inspection.

1 **108.5 Access for inspection.** The permit holder and the person requesting any inspections  
2 required by this code shall provide access to and means for proper inspection of such work,  
3 including safety equipment required by Washington Industrial Safety and Health Agency. The  
4 work shall remain accessible and exposed for inspection purposes until approved by the building  
5 official. Neither the building official nor the City shall be liable for expense entailed in the  
6 required removal or replacement of any material to allow inspection.  
7

8 **108.6 Inspection record.** Work requiring a permit shall not be commenced until the permit  
9 holder or the permit holder's agent has posted an inspection record in a conspicuous place on the  
10 premises and in a position that allows the building official to conveniently make the required  
11 entries regarding inspection of the work. This record shall be maintained in such a position by the  
12 permit holder or the permit holder's agent until final approval has been granted by the building  
13 official.  
14

15 **108.7 Approvals required.** No work shall be done on any part of the building or structure  
16 beyond the point indicated in each successive inspection without first obtaining the written  
17 approval of the building official. Written approval shall be given only after an inspection has  
18 been made of each successive step in the construction as indicated by each of the inspections  
19 required in Section 108.9. There shall be a final inspection and approval of all buildings when  
20 completed and ready for occupancy.  
21

22  
23 **108.7.1 Effect of approval.** Approval as a result of an inspection is not an approval of any  
24 violation of the provisions of this code or of other pertinent laws and ordinances of the City.  
25  
26  
27  
28



Inspections presuming to give authority to violate or cancel the provisions of this code or of other pertinent laws and ordinances of the City are not valid.

**108.8 Concealment of work.** No required reinforcing steel or structural framework of any part of any building or structure shall be covered or concealed in any manner whatsoever without first obtaining the approval of the building official. Protection of joints and penetrations in fire-resistance-rated assemblies, smoke barriers and smoke partitions shall not be concealed from view until inspected and approved.

**Exception:** Modular homes and commercial coaches identified by State of Washington stickers as specified in Section 106.13.3 and placed upon a permanent foundation approved and inspected by the building official.

**108.9 Required inspections.** The building official, upon notification by the permit holder or the permit holder's agent, of the property address and permit number, shall make the following inspections and shall either approve that portion of the construction as completed or shall notify the permit holder or the permit holder's agent if the construction fails to comply with the law.

**108.9.1 First ground disturbance inspection.** To be made prior to beginning land-disturbing activity, and following installation of erosion control measures and any required fencing that may restrict land disturbance in steep slope or other buffers as defined in chapter 25.09 SMC.

**Note:** The purpose of the site inspection is to verify the erosion control method, location and proper installation. Approved drainage plan requirements and site plan conditions will also be verified, including buffer delineations.

**108.9.2 Foundation inspection.** To be made after trenches are excavated and forms erected and when all materials for the foundation are delivered on the job. Where concrete from a central mixing plant (commonly termed “ready mix”) is to be used, materials need not be on the job.

**108.9.3 Concrete slab or under-floor inspection.** To be made after all in-slab or under-floor building service equipment, conduit, piping accessories and other ancillary equipment items are in place but before any concrete is poured or floor sheathing installed, including the subfloor.

**108.9.4 Frame inspection.** To be made after the roof, all framing, fire-blocking and bracing are in place and all pipes, chimneys and vents are complete and the rough electrical, plumbing, and heating wires, pipes and ducts are approved.

**108.9.5 Insulation inspection.** To be made after all insulation and vapor barriers are in place but before any gypsum board or plaster is applied.

**108.9.6 Lath and/or gypsum board inspection.** For shear walls, to be made after lathing and/or gypsum board, interior and exterior, is in place, but before any plastering is applied or before gypsum board joints and fasteners are taped and finished.

**108.9.7 Final site inspection.** To be made after all grading is complete, and all permanent erosion controls, stormwater facilities and stormwater best management practices have been installed.

**Exception:** A final site inspection is not required for projects with less than 750 square feet of land disturbing activity.

**108.9.8 Final inspection.** To be made after finish grading and the building is completed and before occupancy.

**108.10 Special inspections.** For special inspections, see Chapter 17.

**108.11 Other inspections.** In addition to the called inspections specified above, the building official may make or require any other inspections of any construction work or site work to ascertain compliance with the provisions of this code and other pertinent laws and ordinances which are enforced by the building official.

**108.12 Special investigation.** If work for which any permit or approval is required is commenced or performed prior to making formal application and receiving the building official's permission to proceed, the building official may make a special investigation inspection before a permit may be issued for the work. Where a special investigation is made, a special investigation fee may be assessed in accordance with the Fee Subtitle.

**108.13 Reinspections.** The building official may require a reinspection if work for which inspection is called is not complete, corrections required are not made, the inspection record is not properly posted on the work site, the approved plans are not readily available to the inspector, access is not provided on the date for which inspection is requested, or if deviations from construction documents that require the approval of the building official have been made without proper approval, or as otherwise required by the building official.

**108.13.1 Compliance with Section 3401.2.** For the purpose of determining compliance with Section 3403, Maintenance, the building official or the fire chief may cause any structure to be reinspected.

**SECTION 109**

**CERTIFICATE OF OCCUPANCY**

### Exceptions:

- 109.1.1 Effect of Certificate of Occupancy.** Issuance of a Certificate of Occupancy is not approval of any violation of the provisions of this code or other pertinent laws and ordinances of the City. Certificates presuming to give authority to violate or cancel the provisions of this code or of other pertinent laws and ordinances of the City are not valid.

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**109.3 Certificate issued.** After satisfactory completion of inspections, if the building official finds that the building or structure requiring a Certificate of Occupancy complies with the provisions of this code, the Fire Code, other pertinent laws, ordinances and regulations of the City, and with all conditions imposed under any of them, and that the applicant has complied with all requirements to be performed prior to issuance of a Certificate of Occupancy in other pertinent laws, ordinances or regulations or in a Master Use Permit, or otherwise imposed by the building official or by another City department under any pertinent laws, ordinances or regulations, then the building official shall issue a Certificate of Occupancy which shall contain the following information:

1. The building permit number;
2. The address of the building;
3. A description of that portion of the building for which the certificate is issued;
4. A statement that the described portion of the building complies with the requirements of this code for group and division of occupancy and the activity for which the proposed occupancy is classified; and
5. The name of the building official.

**109.4 Temporary certificate.** A Temporary Certificate of Occupancy may be issued by the building official for the use of a portion or portions of a building or structure prior to the completion of the entire building or structure if all devices and safeguards for fire protection and life safety, as required by this code, the Fire Code, and other pertinent laws and ordinances of the

City, are maintained in a safe and usable condition. See Section 106.13 for Certificates of Occupancy for temporary structures.

**109.5 Posting.** A Certificate of Occupancy shall be posted in a conspicuous place on the premises and shall not be removed except by the building official.

**109.6 Suspension or revocation of Certificates of Occupancy.**

**109.6.1 Notice of suspension or revocation.** Whenever the building official determines there are grounds for suspending or revoking a Certificate of Occupancy, the building official may issue a notice of revocation. The notice shall state the reason for suspension or revocation, and shall set the date that the suspension or revocation will take effect if compliance is not achieved by the date set in the notice, which shall be a reasonable time for compliance.

**109.6.2 Standards for suspension or revocation of Certificates of Occupancy.** The building official may suspend or revoke a Certificate of Occupancy if:

- (1) the certificate is issued in error or on the basis of incorrect information supplied; or
- (2) it is determined that the building or structure or portion thereof is in violation of any pertinent laws or ordinances of the City or any of the provisions of this code; or
- (3) when the building, site, applicant, or owner is in violation of any requirement or condition imposed by or pursuant to any other pertinent laws or ordinances of the City that provide for suspension or revocation of a Certificate of Occupancy.

**109.6.3 Service of notice of suspension or revocation.** The building official shall serve a notice of the suspension or revocation upon the owner, agent or other person responsible for

1 the action or condition; the notice shall be served by personal service or regular first class  
2 mail addressed to the last known address of such person. If no address is available after  
3 reasonable inquiry, the notice may be posted in a conspicuous place on the premises.

4 **109.6.4 Effect of notice of suspension or revocation.** The notice shall be considered an  
5 order of the building official if no request for review before the building official is made  
6 pursuant to Section 109.6.5. Nothing in this subsection shall be deemed to limit or preclude  
7 any action or proceeding pursuant to Sections 102 or 103 of this code.

8  
9 **109.6.5 Review of suspension or revocation of Certificate of Occupancy by the building**  
10 **official.**

11  
12 **109.6.5.1 Request for review.** Any person affected by a notice of revocation issued  
13 pursuant to Section 109.6 may obtain a review of the notice by making a request in writing  
14 within ten days after service of the notice. When the last day of the period computed is a  
15 Saturday, Sunday, or City holiday, the period shall run until 5 p.m. of the next business  
16 day. The review shall occur not less than ten nor more than 20 days after the request is  
17 received by the building official unless otherwise agreed by the person requesting the  
18 review. Any person affected by the notice of revocation may submit additional  
19 information to the building official.  
20

21 **109.6.5.2 Conduct of review.** The review shall be made by a representative of the  
22 building official who will review any additional information that is submitted and the basis  
23 for issuance of the notice of suspension or revocation. The reviewer may request  
24 clarification of the information received and a site visit.  
25  
26  
27  
28

**109.6.5.3 Decision.** After the review, the building official shall:

1. Sustain the notice;
2. Withdraw the notice;
3. Continue the review to a date certain; or
4. Amend the notice.

**109.6.5.4 Order of suspension or revocation of Certificate of Occupancy.** The building official shall issue an order containing the decision within 15 days of the date that the review is completed and shall cause the order to be mailed by regular first class mail to the persons requesting the review and the persons named on the notice of violation addressed to their last known address.

## **SECTION 110**

### **FEES**

**110.1 Fees.** A fee for each building permit and for other activities related to the enforcement of this code shall be paid as set forth in the Fee Subtitle.

Section 3. The following sections of Chapter 2 of the International Building Code, 2009 Edition, are amended as follows:

## **CHAPTER 2**

### **DEFINITIONS**

#### **SECTION 201**

##### **GENERAL**



\*\*\*

**201.3 Terms defined in other codes.** Where terms are not defined in this code and are defined in the *International Fuel Gas Code*, *International Fire Code*, *International Mechanical Code* or ~~((*International*))~~ *Uniform Plumbing Code*, such terms shall have the meanings ascribed to them as in those codes.

\*\*\*

**201.5 References to other codes.** Whenever an International, National or Uniform Code is referenced in this code, it shall mean the Seattle edition of that code, including any local amendments. References to the “Building Code,” “Fire Code,” “Mechanical Code” and “Plumbing Code” mean the Seattle editions of those codes.

## SECTION 202

### DEFINITIONS

\*\*\*

**[W] ADULT FAMILY HOME.** See Section 310.2.

\*\*\*

**[W] AIR-PERMEABLE INSULATION.** An insulation having an air permeance equal to or less than 0.02 L/s-m<sup>2</sup> at 75 Pa pressure differential tested in accordance with ASTM E2178 or ASTM E283.

\*\*\*

~~**((ASSISTED LIVING FACILITIES.** See Section 310.2, “Residential Care/Assisted living facilities.”))~~

\*\*\*

**AWNING.** ~~((An architectural projection that provides weather protection, identity or decoration and is wholly supported by the building to which it is attached. An *awning* is comprised of a lightweight frame structure over which a covering is attached.))~~ See Section 3105.2.

**AWNING SIGN.** See Section 3105.2.

\*\*\*

**BUILDING OFFICIAL.** The ~~((officer or other designated authority charged with the administration and enforcement of this code,))~~ Director of the Department of Planning and Development or a duly authorized representative.

**BUILDING PERMIT APPLICATION, FULLY COMPLETE.** See Section 101.3.1.

\*\*\*

**CANOPY.** ~~((A permanent structure or architectural projection of rigid construction over which a covering is attached that provides weather protection, identity or decoration, and shall be structurally independent or supported by attachment to a building on one end and by not less than one stanchion on the outer end.))~~ A protective covering with a rigid surface projecting from a building. Marquees are a type of canopy.

\*\*\*

**[W] CHILD DAY CARE.** See Section 310.2.

**[W] CHILD DAY CARE HOME, FAMILY.** See Section 310.2.

\*\*\*

**CLOSED CIRCUIT TELEPHONE.** See Section 1102.1.

\*\*\*

**CONSTRUCTION DOCUMENTS.** Written, graphic and pictorial documents, in electronic or paper format, prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building *permit and final approval of construction*.

\*\*\*

**COVERED BOAT MOORAGE.** See Section 424.1.2.

\*\*\*

**DAMAGE RATIO.** See Section 3402.1.

\*\*\*

**DEFERRED SUBMITTALS.** Those portions of the design that are not submitted at the time of the application and that are to be submitted to the *building official* within a specified period. Deferred submittals include but are not limited to shop drawings for truss systems and sprinkler systems.

\*\*\*

**DESIGN BASIS EARTHQUAKE (DBE).** See Section 3402.1.

\*\*\*

**DESIGNATED AREAS.** See Section 1204.2.1.

\*\*\*

**DISPLAY SURFACE.** See Section 3107.3.

**DOCK.** See Section 424.1.2.

\*\*\*

**ELECTRIC SIGN.** See Section 3107.3.

\*\*\*

**EMERGENCY POWER SYSTEM.** An electrical system that complies with *Seattle Electrical Code Article 700.*

\*\*\*

**EXIT PLACARD.** See Section 1002.1.

**EXIT SIGN.** See Section 1002.1.

\*\*\*

**FEE SUBTITLE.** Seattle Municipal Code Title 22, Subtitle IX.

\*\*\*

**FIRE CODE OFFICIAL.** The chief of the Seattle Fire Department or a duly authorized representative.

\*\*\*

**FIRE DETECTION SYSTEM.** See Section 902.1.

\*\*\*

**FIRE DISTRICT.** See Section 401.2.

\*\*\*

**FIRE-RETARDANT COVERING.** See Section 3105.2.

\*\*\*

**FLAMMABLE VAPOR AREA.** See Section 416.1.1.

\*\*\*

**FULLY COMPLETE BUILDING PERMIT APPLICATION.** See Section 101.3.1.

\*\*\*

**HISTORIC BUILDINGS.** ~~((Buildings that are listed in or eligible for listing in the National Register of Historic Places, or designated as historic under an appropriate state or local law (see Sections 3409 and 3411.9).))~~ See “LANDMARK”.

\*\*\*

**[W] HOSPICE CARE CENTER.** A building or portion thereof used on a 24-hour basis for the provision of hospice services to terminally ill inpatients.

\*\*\*

~~((**JURISDICTION** The governmental unit that has adopted this code under due legislative authority.))~~

\*\*\*

**LAND USE CODE.** *Seattle Land Use Code*, Title 23 of the Seattle Municipal Code, as amended.

**LAND-DISTURBING ACTIVITY.** Any activity that results in a movement of earth, or a change in the existing soil cover (both vegetative and nonvegetative) or the existing topography. Land-disturbing activities include, but are not limited to, clearing, grading, filling, excavation or addition or replacement of impervious surface.

**LANDMARK.** A building or structure that is subject to a requirement to obtain a certificate of approval from the City Landmarks Preservation Board before altering or making significant

changes to specific features or characteristics, that has been nominated for designation and the City Landmarks Preservation Board has not issued a determination regarding designation, that has been designated for preservation by the City Landmarks Preservation Board, that has been designated for preservation by the State of Washington, that has been listed or determined eligible to be listed in the National Register of Historic Places, or that is located in a landmark or special review district subject to a requirement to obtain a certificate of approval before making a change to the external appearance of a structure.

**LIFE SAFETY PERFORMANCE LEVEL.** See Section 3402.1.

\*\*\*

**LIMITED SPRAYING SPACE.** See Section 416.1.1.

\*\*\*

**LIVE/WORK UNIT.** *A dwelling unit or sleeping unit* in which a significant portion of the space includes a nonresidential use that is operated by the tenant.

\*\*\*

**MAILBOXES.** See Section 1102.1.

\*\*\*

**MARQUEE.** ~~((A permanent roofed structure attached to and supported by the building and that projects into the public right-of-way.))~~ Marquees are a type of canopy. See Section 3105.2 for the definition of “canopy.”

\*\*\*

**MAXIMUM CONSIDERED EARTHQUAKE (MCE).** See Section 3402.1.

\*\*\*

**[W] NIGHTCLUB.** An A-2 occupancy under the 2006 *International Building Code* in where the aggregate area of concentrated use is composed of unfixed chairs and standing space that is specifically designated and primarily used for dancing or viewing performers and exceeds 350 square feet (33 m2), excluding adjacent lobby areas. "Nightclub" does not include theaters with fixed seating, banquet halls, or lodge halls.

\*\*\*

**NONSTRUCTURAL TRIM.** See Section 3107.3.

\*\*\*

**ON-PREMISE SIGN.** See Section 3107.3.

\*\*\*

**PERSON.** An individual, receiver, ~~((heirs, executors, administrators or assigns, and also includes a))~~ administrator, executor, assignee, trustee in bankruptcy, trust estate, firm, partnership, joint venture, club, company, joint stock company, business trust, municipal corporation, political subdivision of the State of Washington, the State of Washington and any instrumentality thereof, ((or)) corporation, limited liability company, association, society or any group of individuals acting as a unit, whether mutual, cooperative, fraternal, nonprofit or otherwise, and the United States or any instrumentality thereof. ((its or their successors or assigns, or the agent of any of the aforesaid.))

\*\*\*

**PIER.** See Section 424.1.2.

\*\*\*

**[W] PORTABLE SCHOOL CLASSROOM.** See Section 902.1.

\*\*\*

**PRIVATE TRANSFORMER VAULT.** See Section 425.2.

**PROJECTING SIGN.** See Section 3107.3.

\*\*\*

**RECYCLABLE MATERIALS.** See Section 427.1.

\*\*\*

~~((REPAIR. The reconstruction or renewal of any part of an existing building for the purpose of its maintenance.))~~

\*\*\*

~~((RESIDENTIAL CARE/ASSISTED LIVING FACILITIES. See Section 310.2.))~~

\*\*\*

~~((RETRACTABLE AWNING. See Section 3105.2.))~~

\*\*\*

**ROOF SIGN.** See Section 3107.3.

\*\*\*

**SECONDARY MEMBERS.** The following structural members shall be considered secondary members and not part of the primary structural frame:

1. Structural members not having direct connections to the columns;
2. Members of the floor construction not having direct connections to the columns; and



3. Bracing members other than those that are part of the *primary structural frame*.

**Interpretation I202S:** A secondary member (component or subsystem) is a structurally significant portion of the building that is supported by the primary structure, but which does not contribute to the strength or stability of the primary structure. Secondary members have internal structural integrity to perform their function and have their interactions with and its attachments to, the primary structure analyzed and designed to assure its proper integration within the total structure.

\*\*\*

**SIGN.** See Section 3107.3.

**SIGN STRUCTURE.** See Section 3107.3.

\*\*\*

**SMALL BUSINESS.** See Section 1702.1.

\*\*\*

**SPRAY BOOTH.** See Section 416.1.1.

**SPRAY ROOM.** See Section 416.1.1.

\*\*\*

**SPRAYING SPACE.** See Section 416.1.1.

\*\*\*

**STANDBY POWER SYSTEM, LEGALLY REQUIRED.** An electrical power system that complies with *Seattle Electrical Code* Article 701, Legally Required Standby Systems, and Chapter 27 of the *Seattle Building Code*.

\*\*\*

**[W] STORY.** That portion of a building, including basements, ~~((included))~~ located between the upper surface of a floor and the upper surface of the next floor or roof (~~((next))~~) above (also see “Basement,” “*Mezzanine*” and Section 502.1). It is measured as the vertical distance from top to top of two successive tiers of beams or finished floor surfaces and, for the topmost *story*, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters.

**[W] STORY ABOVE GRADE PLANE.** Any *story* having its finished floor surface entirely above *grade plane*, or in which the finished surface of the next floor or roof (~~((next))~~) above is:

1. More than 6 feet (1829 mm) above *grade plane*; or
2. More than 12 feet (3658 mm) above the finished ground level (~~((at any point.))~~) for more than 25 feet (7620 mm) of the perimeter. Required driveways up to 22 feet (6706 mm) wide shall not be considered in calculating the 25 foot distance if there is at least 10 feet (3048 mm) between the driveway and all portions of the 25 foot area. See Figure 202.1.

\*\*\*

**STRUCTURAL ENGINEER IN RESPONSIBLE CHARGE.** A structural engineer licensed to practice under the laws of the State of Washington who is engaged by the owner to review and coordinate structural design aspects of the project, as determined by the *building official*, for compatibility with the design of the building or structure, including submittal documents prepared by others, deferred submittal documents and phased submittal documents.

\*\*\*

**STRUCTURALLY QUALIFIED PRODUCTS.** Products that have been prequalified based on current acceptance and certification by an accepted authority such as International Code Council (ICC), American Society for Testing and Materials (ASTM), American Concrete Institute (ACI), American Institute of Steel Construction (AISC), or others widely accepted in the engineering field.

**STRUCTURE.** That which is built or constructed.

\*\*\*

**SUBSTANTIAL ALTERATION.** See Section 3404.9.

\*\*\*

~~((SUBSTANTIAL STRUCTURAL DAMAGE. See Section 3402.1.))~~

**SUBSTRUCTURE.** See Section 424.1.2.

\*\*\*

**SUPERSTRUCTURE.** See Section 424.1.2.

\*\*\*

**TRANSIENT LODGING.** See Section 1102.1.

\*\*\*

**UNSAFE.** Structurally unsound, provided with inadequate egress, constituting a fire hazard, or otherwise dangerous to human life, or constituting a hazard to safety, health or public welfare because of inadequate maintenance, deterioration, instability, dilapidation, obsolescence, damage by fire, abandonment or other causes.

\*\*\*

**[F] USE (MATERIAL).** See Section 415.2.

**Interpretation I202U: USE,** where otherwise mentioned in this code, is equivalent to character of occupancy and not intended to be construed as the definition of USE in the *Land Use Code*.

**UTILITY TRANSFORMER VAULT.** See Section 425.2.

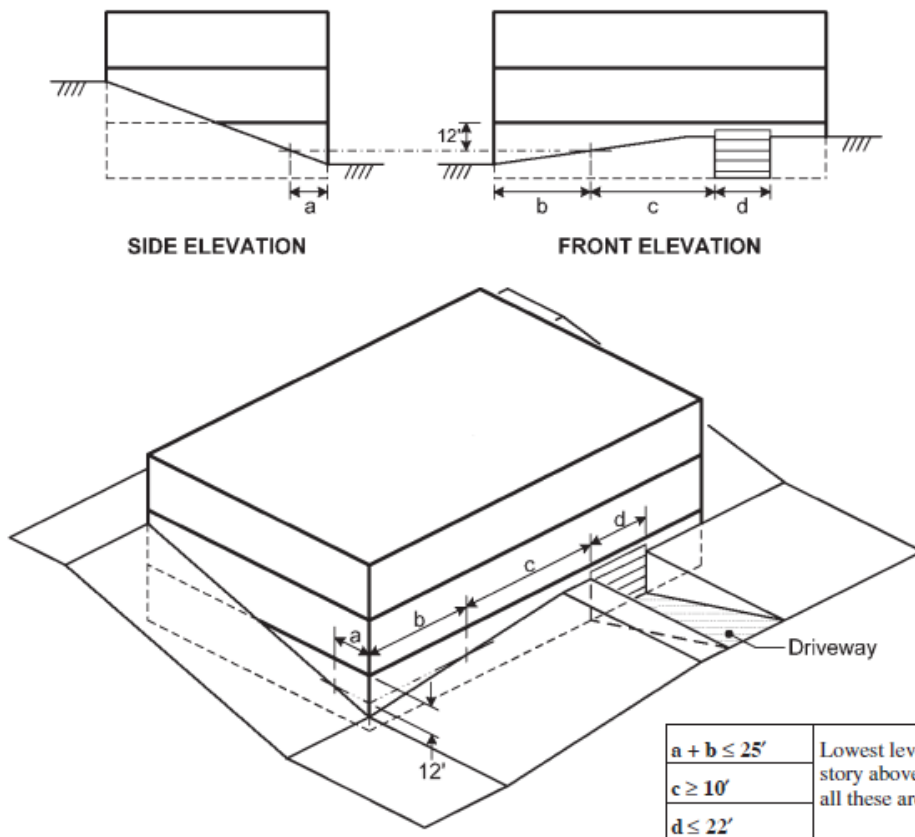
\*\*\*

**WALL SIGN.** See Section 3107.3.

\*\*\*

**WHARF.** See Section 424.1.2.

\*\*\*



**Figure 202.1**

**Story Above Grade Plane**

Section 4. The following sections of Chapter 3 of the International Building Code, 2009 Edition, are amended as follows:

**CHAPTER 3**

**USE AND OCCUPANCY CLASSIFICATION**

\*\*\*

**SECTION 302**

**CLASSIFICATION**

**302.1 General.** Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed below. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5
2. Business (see Section 304): Group B
3. Educational (see Section 305): Group E
4. Factory and Industrial (see Section 306): Groups F-1 and F-2

5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5

6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4

7. Mercantile (see Section 309): Group M

8. Residential (see Section 310): Groups R-1, R-2, and R-3 (~~and R-4~~)

9. Storage (see Section 311): Groups S-1 and S-2

10. Utility and Miscellaneous (see Section 312): Group U

\*\*\*

## SECTION 305

### EDUCATIONAL GROUP E

\*\*\*

**305.2 Day care.** The use of a building or structure, or portion thereof, for educational, supervision or *personal care services* for more than five children older than 2 1/2 years of age, shall be classified as a Group E occupancy.

**[W] Exception:** Family child day care homes licensed by Washington State for the care of twelve or fewer children shall be classified as Group R-3.

\*\*\*

## SECTION 307

### HIGH-HAZARD GROUP H

**[F] 307.1 High-hazard Group H.** High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in

1 excess of those allowed in *control areas* complying with Section 414, based on the maximum  
2 allowable quantity limits for control areas set forth in Tables 307.1(1) and 307.1(2). Hazardous  
3 occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with  
4 this section, the requirements of Section 415 and the *International Fire Code*. Hazardous  
5 materials stored, or used on top of roofs or canopies shall be classified as outdoor storage or use  
6 and shall comply with the *International Fire Code*.

7  
8 **Exceptions:** The following shall not be classified as Group H, but shall be classified as the  
9 occupancy that they most nearly resemble.

10 1. Buildings and structures occupied for the application of flammable finishes, provided that  
11 such buildings or areas conform to the requirements of Section 416 and the *International Fire*  
12 *Code*.

13  
14 2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile  
15 occupancies conforming to the *International Fire Code*.

16 3. Closed piping system containing (~~flammable or~~) combustible liquids (~~or gases~~) utilized  
17 for the operation of machinery or equipment in accordance with the *International Fire Code*  
18 and rules promulgated by the building official and the fire code official for fuel storage in  
19 aboveground tanks.

20  
21 4. Cleaning establishments that utilize combustible liquid solvents having a flash point of  
22 140°F (60°C) or higher in closed systems employing equipment *listed* by an *approved* testing  
23 agency, provided that this occupancy is separated from all other areas of the building by 1-  
24  
25  
26  
27  
28

hour *fire barriers* constructed in accordance with Section 707 or 1-hour *horizontal assemblies* constructed in accordance with Section 712, or both.

5. Cleaning establishments that utilize a liquid solvent having a flash point at or above 200°F (93°C).

6. Liquor stores and distributors without bulk storage.

7. Refrigeration systems.

8. The storage or utilization of materials for agricultural purposes on the premises.

9. Stationary batteries utilized for facility emergency power, ~~((uninterrupted))~~ uninterruptible power supply or telecommunication facilities, ~~((provided that the batteries are provided with safety venting caps and ventilation is provided))~~ in accordance with the *International Mechanical Code* and the International Fire Code.

10. Corrosives shall not include personal or household products in their original packaging used in retail display or commonly used building materials.

11. Buildings and structures occupied for aerosol storage shall be classified as Group S-1, provided that such buildings conform to the requirements of the *International Fire Code*.

12. Display and storage of nonflammable solid and nonflammable or noncombustible liquid hazardous materials in quantities not exceeding the maximum allowable quantity per *control area* in Group M or S occupancies complying with Section 414.2.5.

13. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial explosive devices in Groups B, F, M and S, provided such



storage conforms to the quantity limits and requirements prescribed in the *International Fire Code*.

\*\*\*

## SECTION 308

### INSTITUTIONAL GROUP I

\*\*\*

**[W] 308.2 Group I-1.** This occupancy shall include buildings, structures or parts thereof housing more than 16 persons, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides *personal care services*. The occupants are capable of responding to an emergency situation without physical assistance from staff. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Convalescent facilities

Group homes

Halfway houses

Residential board and care facilities

Social rehabilitation facilities

A facility such as the above with five or fewer persons and adult family homes licensed by Washington State shall be classified as a Group R-3 or shall comply with the *International*

*Residential Code* in accordance with Section 101.2. ((A facility such as above, housing at least six and not more than 16 persons, shall be classified as Group R-4.))

A facility such as the above providing licensed care to clients in one of the categories listed in Section 310.1 licensed by Washington State shall be classified as Group R-2.

**[W] 308.3 Group I-2.** This occupancy shall include buildings and structures used for medical, surgical, psychiatric, nursing or custodial care on a 24-hour basis for more than 5 persons who are not capable of self-preservation.

This group shall include, but not be limited to, the following:

Child care facilities

Detoxification facilities

Hospice care centers

Hospitals

Mental hospitals

Nursing homes

A facility such as the above providing licensed care to clients in one of the categories listed in Section 310.1 licensed by Washington State shall be classified as Group R-2.

**308.3.1 Definitions.** The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

**CHILD CARE FACILITIES.** Facilities that provide care on a 24-hour basis to more than five children, 21/2 years of age or less.

**DETOXIFICATION FACILITIES.** Facilities that serve patients who are provided treatment for substance abuse on a 24-hour basis and who are incapable of self-preservation or who are harmful to themselves or others.

**[W] HOSPICE CARE CENTER.** A building or portion thereof used on a 24-hour basis for the provision of hospice services to terminally ill inpatients.

**HOSPITALS AND MENTAL HOSPITALS.** Buildings or portions thereof used on a 24-hour basis for the medical, psychiatric, obstetrical or surgical treatment of inpatients who are incapable of self-preservation.

**NURSING HOMES.** Nursing homes are long-term care facilities on a 24-hour basis, including both intermediate care facilities and skilled nursing facilities, serving more than five persons and any of the persons are incapable of self-preservation.

\*\*\*

**308.5 Group I-4, day care facilities.** This group shall include buildings and structures occupied by persons of any age who receive custodial care for less than 24 hours by individuals other than parents or guardians, relatives by blood, marriage or adoption, and in a place other than the home of the person cared for. A facility such as the above with five or fewer persons shall be classified as a Group R-3 or shall comply with the *International Residential Code* in accordance with Section 101.2.

Places of worship during religious functions are not included.

**308.5.1 Adult care facility.** A facility that provides accommodations for less than 24 hours for more than five unrelated adults and provides supervision and *personal care services* shall be classified as Group I-4.

**Exception:** A facility where occupants are capable of responding to an emergency situation without physical assistance from the staff shall be classified as Group R-3.

**308.5.2 Child care facility.** A facility that provides supervision and personal care on less than a 24-hour basis for more than five children 2 1/2 years of age or less shall be classified as Group I-4.

**Exceptions:**

1. A child day care facility that provides care for more than five but no more than 100 children 2-1/2 years or less of age, where the rooms in which the children are cared for are located on a *level of exit discharge* serving such rooms and each of these child care rooms has an *exit* door directly to the exterior, shall be classified as Group E.

[W]2. Family child day care homes licensed by Washington for the care of 12 or fewer children shall be classified as Group R-3.

\*\*\*

**SECTION 310**

**RESIDENTIAL GROUP R**

[W] **310.1 Residential Group R.** Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an

Institutional Group I or when not regulated by the *International Residential Code* in accordance with Section 101.2. Residential occupancies shall include the following:

**R-1** Residential occupancies containing *sleeping units* where the occupants are primarily transient in nature, including:

*Boarding houses* (transient) with more than ten occupants

*Congregate living facilities* (transient) with more than ten occupants

Hotels (transient)

Motels (transient)

~~((*Congregate living facilities* (transient) and with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.))~~

**R-2** Residential occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

Apartment houses

Boarding homes as licensed by Department of Social and Health Services under Chapter 388-

78A WAC

*Boarding houses* (nontransient) with more than 16 occupants

*Congregate living facilities* (nontransient) with more than 16 occupants

Convents

Dormitories

Fraternities and sororities

Hotels (nontransient)

1 Live/work units

2 Monasteries

3 Motels (nontransient)

4 Residential treatment facilities as licensed by Washington State Department of Health under

5 Chapter 246-337 WAC

6 Vacation timeshare properties

7  
8 ~~((Congregate living facilities with 16 or fewer occupants are permitted to comply with the~~  
9 ~~construction requirements for Group R-3.))~~

10 **R-3** Residential occupancies where the occupants are primarily permanent in nature and not  
11 classified as Group R-1, R-2, ~~((R-4))~~ or I, including:

12 Buildings that do not contain more than two *dwelling units*.

13  
14 Adult care facilities that provide accommodations for five or fewer persons of any age for less  
15 than 24 hours.

16 Boarding houses (nontransient) with 16 or fewer occupants

17 Boarding houses (transient) with ten or fewer occupants

18  
19 ~~((Child care facilities that provide accommodations for five or fewer persons of any age for~~  
20 ~~less than 24 hours.))~~

21 Congregate living facilities (nontransient) with 16 or fewer ((persons)) occupants.

22 Congregate living facilities (transient) with ten or fewer occupants.

Adult family homes, family child day care homes, and adult care and child care facilities that  
are within a single-family home are permitted to comply with the *International Residential*  
*Code*.

Foster family care homes licensed by Washington State are permitted to comply with the  
International Residential Code, as an accessory use to a dwelling, for six or fewer children  
including those of the resident family.

~~((R-4 Residential occupancies shall include buildings arranged for occupancy as residential  
care/assisted living facilities including more than five but not more than 16 occupants, excluding  
staff. Group R-4 occupancies shall meet the requirements for construction as defined for Group  
R-3, except as otherwise provided for in this code or shall comply with the *International*  
*Residential Code* provided the building is protected by an *automatic sprinkler system* installed in  
accordance with Section 903.2.7.))~~

**[W] 310.2 Definitions.** The following words and terms shall, for the purposes of this section and  
as used elsewhere in this code, have the meanings shown herein.

**ADULT FAMILY HOME.** A dwelling in which a person or persons provide personal care,  
special care, room and board to more than one but not more than six adults who are not related  
by blood or marriage to the person or persons providing the services.

**BOARDING HOUSE.** A building arranged or used for lodging for compensation, with or  
without meals, and not occupied as a single-family unit.

**CHILD DAY CARE.** For the purposes of these regulations is the care of children during any  
period of a 24-hour day.

**CHILD DAY CARE HOME, FAMILY.** A child day care facility, licensed by the state, located in the dwelling of the person or persons under whose direct care and supervision the child is placed, for the care of 12 or fewer children, including children who reside at the home.

**CONGREGATE LIVING FACILITIES.** A building or part thereof that contains sleeping units where residents share bathroom and/or kitchen facilities.

**DORMITORY.** A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses.

**PERSONAL CARE SERVICE.** The care of residents who do not require chronic or convalescent medical or nursing care. Personal care involves responsibility for the safety of the resident while inside the building.

~~((RESIDENTIAL CARE/ASSISTED LIVING FACILITIES. A building or part thereof housing persons, on a 24 hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment which provides personal care services. The occupants are capable of responding to an emergency situation without physical assistance from staff. This classification shall include, but not be limited to, the following: residential board and care facilities, assisted living facilities, halfway houses, group homes, congregate care facilities, social rehabilitation facilities, alcohol and drug abuse centers and convalescent facilities.))~~

**TRANSIENT.** Occupancy of a *dwelling unit* or *sleeping unit* for not more than 30 days.

## SECTION 311



## STORAGE GROUP S

\*\*\*

**311.2 Moderate-hazard storage, Group S-1.** Buildings occupied for storage uses that are not classified as Group S-2, including, but not limited to, storage of the following:

Aerosols, Levels 2 and 3

Aircraft hangar (storage and repair)

Bags: cloth, burlap and paper

Bamboos and rattan

Baskets

Belting: canvas and leather

Books and paper in rolls or packs

Boots and shoes

Buttons, including cloth covered, pearl or bone

Cardboard and cardboard boxes

Clothing, woolen wearing apparel

Cordage

Dry boat storage (indoor)

Furniture

Furs

Glues, mucilage, pastes and size

Grains

Horns and combs, other than celluloid

Leather

Linoleum

Lumber

Motor vehicle and marine repair garages complying with the maximum allowable quantities of  
hazardous materials listed in Table 307.1(1) (see Section 406.6)

Photo engravings

Resilient flooring

Silks

Soaps

Sugar

Tires, bulk storage of

Tobacco, cigars, cigarettes and snuff

Upholstery and mattresses

Wax candles

**311.3 Low-hazard storage, Group S-2.** Includes, among others, buildings used for the storage  
of noncombustible materials such as products on wood pallets or in paper cartons with or without  
single thickness divisions; or in paper wrappings. Such products are permitted to have a  
negligible amount of plastic *trim*, such as knobs, handles or film wrapping. Group S-2 storage  
uses shall include, but not be limited to, storage of the following:

Asbestos

1 Beverages up to and including 16-percent alcohol in metal, glass or ceramic containers

2 Cement in bags

3 Chalk and crayons

4 Covered boat moorage not classified as Group U

5 Dairy products in nonwaxed coated paper containers

6 Dry cell batteries

7 Electrical coils

8 Electrical motors

9 Empty cans

10 Food products

11 Foods in noncombustible containers

12 Fresh fruits and vegetables in nonplastic trays or containers

13 Frozen foods

14 Glass

15 Glass bottles, empty or filled with noncombustible liquids

16 Gypsum board

17 Inert pigments

18 Ivory

19 Meats

20 Metal cabinets

21 Metal desks with plastic tops and *trim*

1 Metal parts

2 Metals

3 Mirrors

4 Oil-filled and other types of distribution transformers

5 Parking garages, open or enclosed

6 Porcelain and pottery

7 Stoves

8 Talc and soapstones

9 Washers and dryers

## 10 SECTION 312

### 11 UTILITY AND MISCELLANEOUS GROUP U

12 **312.1 General.** Buildings and structures of an accessory character and miscellaneous structures  
13 not classified in any specific occupancy shall be constructed, equipped and maintained to  
14 conform to the requirements of this code commensurate with the fire and life hazard incidental to  
15 their occupancy. Group U shall include, but not be limited to, the following:

16 Agricultural buildings

17 Aircraft hangars, accessory to a one- or two-family residence (see Section 412.5)

18 Barns

19 Carports

20 Covered boat moorage accessory to Group R-3 dwelling unit

21 Fences more than 6 feet (1829 mm) high

Grain silos, accessory to a residential occupancy

Greenhouses

Livestock shelters

Private garages

Retaining walls

Sheds

Stables

Tanks

Towers

Section 5. The following sections of Chapter 4 of the International Building Code, 2009 Edition, are amended as follows:

## **SECTION 401**

### **SCOPE AND DEFINITION**

**401.1 Detailed use and occupancy requirements.** In addition to the occupancy and construction requirements in this code, the provisions of this chapter apply to the special uses and occupancies described herein.

**401.2 Definition—Fire District.** The Fire District consists of that part of the city within the boundary described as follows:

Beginning at the intersection of the center line of Alaskan Way and Clay Street; thence northeasterly along the center line of Clay Street to an intersection with the center line of Denny Way; thence easterly along the center line of Denny Way to an intersection with the center line of

Yale Avenue; thence southeasterly along the center line of Yale Avenue to an intersection with the center line of Interstate Highway 5; thence southerly and southeasterly along the centerline of Interstate 5 to an intersection with the center line of 7th Avenue South; thence southerly along the center line of 7th Avenue South to an intersection with the center line of Dearborn Street; thence westerly along the center line of Dearborn Street to an intersection with the center line of Airport Way; thence northwesterly along the center line of Airport Way to an intersection with the center line of 4th Avenue South; thence southerly along the center line of 4th Avenue South to an intersection with the center line of South Royal Brougham Way; thence westerly along the center line of South Royal Brougham Way to an intersection with the center line of South Alaskan Way; thence southerly along the center line of South Alaskan Way to an intersection with the center line of South Massachusetts Street, thence westerly along the center line of South Massachusetts Street to the Outer Harbor Line in Elliott Bay, thence northerly and northwesterly along the Outer Harbor Line to an intersection with the center line of West Harrison Street, thence easterly along the center line of West Harrison Street to an intersection with the center line of Alaskan Way, then southeasterly along the center line of Alaskan Way to the point of beginning.

Buildings and structures located partially within and partially outside the Fire District are considered to be located in the Fire District.

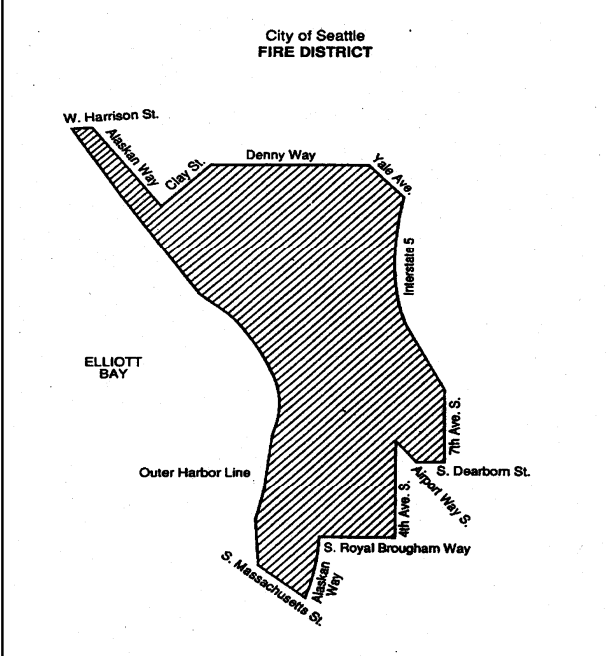


Figure 401.2

## SECTION 402

### COVERED MALL AND OPEN MALL BUILDINGS

\*\*\*

~~((402.3 Lease plan. Each covered mall building owner shall provide both the building and fire departments with a lease plan showing the location of each occupancy and its exits after the certificate of occupancy has been issued. No modifications or changes in occupancy or use shall be made from that shown on the lease plan without prior approval of the building official.))~~

\*\*\*

[F] **402.14 ((Standby power)) Emergency power system.** *Covered mall buildings* exceeding 50,000 square feet (4645 m2) shall be provided with ((standby) emergency power systems that are capable of operating the emergency voice/alarm communication system.

\*\*\*

## SECTION 403

### HIGH-RISE BUILDINGS

**403.1 Applicability.** High-rise buildings shall comply with Sections 403.2 through 403.6.

**Exception:** The provisions of Sections 403.2 through 403.6 shall not apply to the following buildings and structures:

1. Airport traffic control towers in accordance with Section 412.3.
2. Open parking garages in accordance with Section 406.3.
3. Buildings with a Group A-5 occupancy in accordance with Section 303.1.
4. Special industrial occupancies in accordance with Section 503.1.1.
5. Buildings with a Group H-1, H-2 or H-3 occupancy in accordance with Section 415.

**Interpretation I403.1a:** Item 2 only includes buildings in which parking is the principal use.

**Interpretation I403.1b:** For the purpose of this section, occupied roof decks are considered floors used for human occupancy if the occupant load of the deck is ten or more on the roof of a building not equipped with an automatic sprinkler system or where the occupant load is 50 or more on the roof of a building that is equipped with an automatic sprinkler system.



1 **403.1.1 Predesign conference.** At least 60 days prior to application, the applicant shall arrange  
2 a predesign conference with the design team, the building official and the fire code official, to  
3 review the proposed emergency life safety systems for the building and the protection of the life  
4 safety systems. The purpose of the meeting is to obtain conceptual approval from the building  
5 official and the fire code official of the proposed systems and to allow for design based upon the  
6 latest state-of-the-art.

7  
8 The building official and fire code official are permitted to require sufficient documentation,  
9 based upon appropriate analyses, that the proposal meets the intent of nationally recognized good  
10 practices. The building permit shall not be issued until the building official and fire code official  
11 have approved, in writing, the emergency life safety systems for the building and the protection  
12 of the life safety systems. The documentation of the predesign meeting shall be reflected on the  
13 plans for the building and become a permanent part of the Department of Planning and  
14 Development's records.

15  
16 The sequence and/or timing of operation of smoke and heat detection systems shall be  
17 determined at the predesign conference.

18  
19 **403.1.2 Testing.** All mechanical and electrical equipment installed according to approved plans  
20 and specifications pursuant to this section shall be tested and proven to be in proper working  
21 condition to the satisfaction of the fire code official before issuance of the Certificate of  
22 Occupancy. Such systems shall be maintained in accordance with the Fire Code.

23  
24 **403.2 Construction.** The construction of high-rise buildings shall comply with the provisions of  
25 Sections 403.2.1 through 403.2.4.

**403.2.1 Reduction in fire-resistance rating.** The *fire-resistance-rating* reductions listed in Sections 403.2.1.1 and 403.2.1.2 shall be allowed in buildings that have sprinkler control valves equipped with supervisory initiating devices and water-flow initiating devices for each floor.

**403.2.1.1 Type of construction.** The following reductions in the minimum *fire-resistance rating* of the building elements in Table 601 shall be permitted as follows:

1. For buildings not greater than 420 feet (128 m) in *building height*, the *fire-resistance rating* of the building elements in Type IA construction shall be permitted to be reduced to the minimum *fire-resistance ratings* for the building elements in Type IB.

**Exception:** The required *fire-resistance rating* of ((~~columns supporting floors~~)) structural frame and bearing walls shall not be permitted to be reduced.

2. In other than Group F-1, M and S-1 occupancies, the *fire-resistance rating* of the building elements in Type IB construction other than structural frame and bearing walls shall be permitted to be reduced to the *fire-resistance ratings* in Type IIA.

3. The *building height* and *building area* limitations of a building containing building elements with reduced *fire-resistance ratings* shall be permitted to be the same as the building without such reductions.

**403.2.1.2 Shaft enclosures.** For buildings not greater than 420 feet (128 m) in *building height*, the required *fire-resistance rating* of the *fire barriers* enclosing vertical shafts, other than *exit enclosures* and elevator hoistway enclosures, is permitted to be reduced to 1 hour where automatic sprinklers are installed within the shafts at the top and at alternate floor levels.

**403.2.2 Seismic considerations.** For seismic considerations, see Chapter 16.

**403.2.3 Structural integrity of exit enclosures and elevator hoistway enclosures.** For high-rise buildings of occupancy category III or IV in accordance with Section 1604.5, and for all buildings that are more than 420 feet (128 m) in *building height*, *exit enclosures* and elevator hoistway enclosures shall comply with Sections 403.2.3.1 through 403.2.3.4.

**403.2.3.1 Wall assembly.** The wall assemblies making up the *exit enclosures* and elevator hoistway enclosures shall meet or exceed Soft Body Impact Classification Level 2 as measured by the test method described in ASTM C 1629/C 1629M.

**403.2.3.2 Wall assembly materials.** The face of the wall assemblies making up the *exit enclosures* and elevator hoistway enclosures that are not exposed to the interior of the *exit enclosure* or elevator hoistway enclosure shall be constructed in accordance with one of the following methods:

1. The wall assembly shall incorporate not less than two layers of impact-resistant construction board each of which meets or exceeds Hard Body Impact Classification Level 2 as measured by the test method described in ASTM C 1629/C 1629M.

2. The wall assembly shall incorporate not less than one layer of impact-resistant construction material that meets or exceeds Hard Body Impact Classification Level 3 as measured by the test method described in ASTM C 1629/C 1629M.

3. The wall assembly incorporates multiple layers of any material, tested in tandem, that meet or exceed Hard Body Impact Classification Level 3 as measured by the test method described in ASTM C 1629/C 1629M.

**403.2.3.3 Concrete and masonry walls.** Concrete or masonry walls shall be deemed to satisfy the requirements of Sections 403.2.3.1 and 403.2.3.2.

**403.2.3.4 Other wall assemblies.** Any other wall assembly that provides impact resistance equivalent to that required by Sections 403.2.3.1 and 403.2.3.2 for Hard Body Impact Classification Level 3, as measured by the test method described in ASTM C 1629/C 1629M, shall be permitted.

**403.2.4 Sprayed fire-resistant materials (SFRM).** The bond strength of the SFRM installed throughout the building shall be in accordance with Table 403.2.4.

\*\*\*

**[F] 403.3 Automatic sprinkler system.** Buildings and structures shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and a secondary water supply where required by Section 903.3.5.2.

**Exception:** An *automatic sprinkler system* shall not be required in spaces or areas of((:

~~1. Open parking garages in accordance with Section 406.3.~~

2. T)) telecommunications equipment buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided that those spaces or areas are equipped throughout with an automatic fire detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour *fire barriers* constructed in accordance with Section 707 or not less than 2-hour *horizontal assemblies* constructed in accordance with Section 712, or both.

**[F] 403.3.1 Number of sprinkler risers and system design.** Each sprinkler system zone in buildings that are more than 420 feet (128 m) in *building height* shall be supplied by a minimum of two risers. Each riser shall supply sprinklers on alternate floors. If more than two risers are provided for a zone, sprinklers on adjacent floors shall not be supplied from the same riser.

**[F] 403.3.1.1 Riser location.** Sprinkler risers shall be placed in *exit enclosures* that are remotely located in accordance with Section 1015.2.

~~((**[F] 403.3.2 Water supply to required fire pumps.** Required fire pumps shall be supplied by connections to a minimum of two water mains located in different streets. Separate supply piping shall be provided between each connection to the water main and the pumps. Each connection and the supply piping between the connection and the pumps shall be sized to supply the flow and pressure required for the pumps to operate.~~

~~**Exception:** Two connections to the same main shall be permitted provided the main is valved such that an interruption can be isolated so that the water supply will continue without interruption through at least one of the connections.))~~

**403.4 Emergency systems.** The detection, alarm and emergency systems of high-rise buildings shall comply with Sections 403.4.1 through 403.4.8.

**[F] 403.4.1 Smoke detection.** Smoke detection shall be provided in accordance with Section 907.2.13.1.

**[F] 403.4.2 Fire alarms systems.** A fire alarm system shall be provided in accordance with Section 907.2.13.

1 [F] **403.4.3 Emergency voice/alarm communication system.** An emergency voice/alarm  
2 communication system shall be provided in accordance with Section 907.5.2.2.

3 [F] **403.4.4 Emergency responder radio coverage.** Emergency responder radio coverage shall  
4 be provided in accordance with Section 510 of the *International Fire Code*.

5 [F] **403.4.5 Fire command.** A fire command center complying with Section 911 shall be  
6 provided in a location *approved* by the fire department.

7  
8 ~~((403.4.6 Smoke removal. To facilitate smoke removal in post fire salvage and overhaul~~  
9 ~~operations, buildings and structures shall be equipped with natural or mechanical ventilation for~~  
10 ~~removal of products of combustion in accordance with one of the following:~~

11 ~~1. Easily identifiable, manually operable windows or panels shall be distributed around the~~  
12 ~~perimeter of each floor at not more than 50 foot (15 240 mm) intervals. The area of operable~~  
13 ~~windows or panels shall not be less than 40 square feet (3.7 m2) per 50 linear feet (15 240 mm)~~  
14 ~~of perimeter.~~

15  
16 **Exceptions:**

17  
18 ~~1. In Group R-1 occupancies, each *sleeping unit* or suite having an *exterior wall* shall be~~  
19 ~~permitted to be provided with 2 square feet (0.19 m2) of venting area in lieu of the area~~  
20 ~~specified in Item 1.~~

21 ~~2. Windows shall be permitted to be fixed provided that glazing can be cleared by fire~~  
22 ~~fighters.~~

2. ~~Mechanical air handling equipment providing one exhaust air change every 15 minutes for the area involved. Return and exhaust air shall be moved directly to the outside without recirculation to other portions of the building.~~

3. ~~Any other *approved* design that will produce equivalent results.))~~

**[F] 403.4.7 No requirements** ~~((Standby power. A standby power system complying with Chapter 27 shall be provided for standby power loads specified in Section 403.4.7.2.~~

~~**[F] 403.4.7.1 Special requirements for standby power systems.** If the standby system is a generator set inside a building, the system shall be located in a separate room enclosed with 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both. System supervision with manual start and transfer features shall be provided at the fire command center.~~

~~**[F] 403.4.7.2 Standby power loads.** The following are classified as standby power loads:~~

- ~~1. Power and lighting for the fire command center required by Section 403.4.5;~~
- ~~2. Ventilation and automatic fire detection equipment for smokeproof enclosures; and~~
- ~~3. Standby power shall be provided for elevators in accordance with Sections 1007.4, 3003, 3007 and 3008.))~~

**[F] 403.4.8 Emergency power systems.** An emergency power system complying with Chapter 27 and Section 403.4.8.2 shall be provided for emergency power loads specified in Section 403.4.8.1.

**[F] 403.4.8.1 Emergency power loads.** The following are classified as emergency power loads:

1. Exit signs and *means of egress* illumination required by Chapter 10;

2. Elevator car lighting;

3. Emergency voice/alarm communications systems;

4. Automatic fire detection systems;

5. Fire alarm systems; ~~and~~

6. Electrically powered fire pumps;

7. Power and lighting for mechanical equipment rooms and the fire command center required by

Section 403.4.5;

8. Electrically powered fire pumps;

9. Ventilation and automatic fire detection equipment for pressurized stairways;

10. Smoke control system; and

11. A selected elevator in each bank, in accordance with Section 3016.6. A bank of elevators is a group of elevators or a single elevator controlled by a common operating system. All elevators that respond to a single call button constitute a bank of elevators. All elevators shall be transferable to an emergency power system.

**Note:** There is no limit on the number of cars that are permitted to be in a bank, but no more than four cars are permitted within a common hoistway. See Section 3016.7.

**403.4.8.2 Special requirements for emergency power systems.** If the emergency power source is a generator set inside a building, the generator set shall be located in a separate room enclosed with 2-hour fire-resistance-rated fire barriers and horizontal assemblies. System supervision with manual start and transfer features shall be provided at the fire command center.



**Exception:** A generator set with a fuel tank system up to a maximum of 660 gallons is not required to be located in a rated room when installed in a sprinklered parking garage of Type I or II construction, unless a 1-hour separation is required to separate control areas in accordance with Table 307.7(1).

**403.5 Means of egress and evacuation.** The *means of egress* in high-rise buildings shall comply with Sections 403.5.1 through 403.5.6.

**403.5.1 Remoteness of exit stairway enclosures.** The required *exit stairway* enclosures shall be separated by a distance not less than 30 feet (9144 mm) or not less than one-fourth of the length of the maximum overall diagonal dimension of the building or area to be served, whichever is less. The distance shall be measured in a straight line between the nearest points of the *exit stairway* enclosures. In buildings with three or more *exit stairway* enclosures, at least two of the *exit stairway* enclosures shall comply with this section. Interlocking or *scissor stairs* shall be counted as one *exit stairway*.

**Exception:** In buildings containing primarily Group R occupancies, required *exit stairway* enclosures are permitted to be separated by a distance not less than 15 feet.

**403.5.2 Additional exit stairway.** For buildings other than Group R-2 that are more than 420 feet (128 m) in *building height*, one additional *exit stairway* meeting the requirements of Sections 1009 and 1022 shall be provided in addition to the minimum number of *exits* required by Section 1021.1. The total width of any combination of remaining *exit stairways* with one *exit stairway* removed shall not be less than the total width required by Section 1005.1. *Scissor stairs* shall not be considered the additional *exit stairway* required by this section.

1 **Exception:** ~~((A))~~ Subject to the approval of the building official, an additional *exit stairway*  
2 shall not be required to be installed in buildings having elevators used for occupant self-  
3 evacuation in accordance with Section ~~((3008))~~ 403.6.2.10.

4 **403.5.3 Stairway door operation.** Stairway doors other than the *exit discharge* doors shall be  
5 permitted to be locked from the stairway side. Stairway doors that are locked from the stairway  
6 side shall be capable of being unlocked simultaneously without unlatching upon a signal from the  
7 fire command center and shall be capable of being unlocked simultaneously and automatically  
8 upon a signal from a fire alarm originating anywhere in the building. When stairway doors are  
9 installed that are not locked from the stairway side, wiring shall be installed to facilitate future  
10 installations of locking hardware.

11  
12  
13 **403.5.3.1 Stairway communication system.** A telephone or other two-way communications  
14 system connected to an *approved* constantly attended station shall be provided at not less than  
15 every fifth floor in each *stairway* ~~((where the doors to the stairway are locked))~~.

16 **403.5.3.2 Stairway penthouses.** All required exit stairways shall terminate at the roof in a  
17 penthouse with a door complying with Sections 1008.1.1 and 1008.1.2. The building official is  
18 permitted to approve an alternate design at the pre-design conference.

19  
20 **403.5.4 ~~((Smokeproof))~~ Smoke control in exit enclosures and elevator hoistways.** Every  
21 required level *exit stairway* serving floors more than 75 feet (22 860 mm) above the lowest level  
22 of fire department vehicle access shall comply with Sections 909.20 and 1022.9. Elevator  
23 hoistways shall comply with Section 3020.

**Exception:** Unless required by other sections of this code, portions of such stairways which serve floors below the level of exit discharge are not required to comply with Sections 909.20 and 1022.9 if the portion of the stairway below the level of exit discharge is separated from the pressurized stairway with not less than 1 hour fire barriers or horizontal assemblies or both.

**403.5.5 Luminous egress path markings.** Luminous egress path markings shall be provided in accordance with Section 1024.

**403.5.6 Emergency escape and rescue.** Emergency escape and rescue openings required by Section 1029 are not required.

**403.6 Elevators.** Elevator installation and operation in high-rise buildings shall comply with Chapter 30 and ~~((Sections 403.6.1 and 403.6.2))~~ this section.

In buildings with stories that are located more than 160 feet (48 768 mm) above the lowest point of fire department access, access to each floor shall be provided by not less than two elevators served by separate machine rooms.

**403.6.1 Fire service access elevator.** In buildings with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, a minimum of one fire service access elevator shall be provided in accordance with this Section ~~((3007))~~.

**403.6.1.1 General.** Where required by Section 403.6.1, every floor of the building shall be served by a fire service access elevator. Except as modified in this section, the fire service access elevator shall be installed in accordance with this code.

**403.6.1.2 Hoistway enclosures protection.** The fire service access elevator shall be located in an enclosure complying with Section 3020.

**403.6.1.3 Hoistway lighting.** When firefighters' emergency operation is active, the entire height of the hoistway shall be illuminated at not less than 1 foot-candle (11 lux) as measured from the top of the car of each fire service access elevator.

**403.6.1.4 Fire service access elevator lobby.** The fire service access elevator shall open into a fire service access elevator lobby in accordance with Sections 403.6.1.4.1 through 403.6.1.4.4.

**Exceptions:**

1. Where a fire service access elevator has two entrances onto a floor, the second entrance shall be permitted to open into an elevator lobby in accordance with Section 708.14.1.

2. Elevators with pressurized hoistways are not required to comply with Section 403.6.1.4.

**403.6.1.4.1 Access.** The fire service access elevator lobby shall have direct access to an *exit enclosure*.

**403.6.1.4.2 Lobby enclosure.** The fire service access elevator lobby shall be enclosed with a *smoke barrier* having a minimum 1-hour *fire-resistance rating*, except that lobby doorways shall comply with Section 403.6.1.4.3.

**Exception:** Enclosed fire service access elevator lobbies are not required at the street floor.

**403.6.1.4.3 Lobby doorways.** Each fire service access elevator lobby shall be provided with a doorway that is protected with a 3/4-hour *fire door assembly* complying with Section 715.4. The *fire door assembly* shall also comply with the smoke and draft control door assembly requirements of Section 715.4.3.1 with the UL 1784 test conducted without the artificial bottom seal.

1 **403.6.1.4.3.1 Door closing.** Each *fire door assembly* protecting the lobby doorway shall be  
2 *automatic-closing* upon receipt of any fire alarm signal from the emergency voice/alarm  
3 *communication system* serving the building.

4 **403.6.1.4.4 Lobby size.** Each enclosed fire service access elevator lobby shall be a minimum of  
5 150 square feet (14m<sup>2</sup>) in area with a minimum dimension of 8 feet (2440 mm).  
6

7 **403.6.1.5 Standpipe hose connection.** A Class I standpipe hose connection in accordance with  
8 Section 905 shall be provided in the *exit enclosure* having direct access from the fire service  
9 access elevator lobby.

10 **403.6.1.6 Elevator system monitoring.** The fire service access elevator shall be continuously  
11 monitored at the fire command center by a standard emergency service interface system meeting  
12 the requirements of NFPA 72.  
13

14 **403.6.1.7 Electrical power.** Emergency power systems shall be provided in accordance with  
15 Section 403.4.8.  
16

17 **403.6.1.7.1 Protection of wiring or cables.** Wires or cables that provide normal and emergency  
18 power, control signals, communication with the car, lighting, heating, air conditioning,  
19 ventilation and fire-detecting systems to fire service access elevators shall be protected by  
20 construction having a minimum 1-hour *fire-resistance rating* or shall be circuit integrity cable  
21 having a minimum 1-hour *fire-resistance rating*.  
22

23 **403.6.1.8 Water protection.** The fire service elevator hoistway shall be designed using an  
24 *approved* method to prevent water from the operation of the *automatic sprinkler system* from  
25 infiltrating into the hoistway enclosure.  
26

1 **403.6.2 Occupant evacuation elevators.** Where installed in accordance with this Section  
2 ~~((3008))~~, passenger elevators for general public use shall be permitted to be used for occupant  
3 self-evacuation.

4 **403.6.2.1 General.** Where elevators are to be used for occupant self-evacuation during fires, all  
5 passenger elevators for general public use shall comply with this section. Where other elevators  
6 are used for occupant self-evacuation, they shall also comply with this section.

7 **403.6.2.2 Fire safety and evacuation plan.** The building shall have an *approved* fire safety and  
8 evacuation plan in accordance with the applicable requirements of Section 404 of the  
9 *International Fire Code*. The fire safety and evacuation plan shall incorporate specific  
10 procedures for the occupants using evacuation elevators.

11 **403.6.2.3 Operation.** The occupant evacuation elevators shall be used for occupant self-  
12 evacuation only in the normal elevator operating mode prior to Phase I Emergency Recall  
13 Operation in accordance with the requirements in Chapter 30 and the building's fire safety and  
14 evacuation plan.

15 **403.6.2.4 Additional exit stairway.** Where an additional *means of egress* is required in  
16 accordance with Section 403.5.2, an additional *exit stairway* shall not be required to be installed  
17 in buildings having elevators used for occupant self-evacuation in accordance with this section.

18 **403.6.2.5 Emergency voice/alarm communication system.** The building shall be provided with  
19 an emergency voice/alarm communication system. The emergency voice/alarm communication  
20 system shall be accessible to the fire department. The system shall be provided in accordance  
21 with Section 907.5.2.2.

**403.6.2.5.1 Notification appliances.** A minimum of one audible and one visible notification appliance shall be installed within each occupant evacuation elevator lobby. For elevators with pressurized hoistways, the notification appliances shall be located adjacent to the hoistway doors.

**403.6.2.6 Automatic sprinkler system.** The building shall be protected throughout by an *approved*, electrically-supervised automatic sprinkler system in accordance with Section 903.3.1.1, except as otherwise permitted by Section 903.3.1.1.1 and as prohibited by Section 403.6.2.6.1.

**403.6.2.6.1 Prohibited locations.** Automatic sprinklers shall not be installed in elevator machine rooms and elevator machine spaces for occupant evacuation elevators.

**403.6.2.6.2 Sprinkler system monitoring.** The sprinkler system shall have a sprinkler control valve supervisory switch and waterflow-initiating device provided for each floor that is monitored by the building's fire alarm system.

**403.6.2.7 High-hazard content areas.** No building areas shall contain high-hazard contents exceeding the maximum allowable quantities per *control area* as addressed in Section 414.2.

**403.6.2.8 Hoistway enclosure protection.** The occupant evacuation elevators shall be located in hoistway enclosure(s) complying with Section 3020.

**403.6.2.9 Water protection.** The occupant evacuation elevator hoistway shall be designed utilizing an *approved* method to prevent water from the operation of the *automatic sprinkler system* from infiltrating into the hoistway enclosure.

**403.6.2.10 Occupant evacuation elevator lobby.** The occupant evacuation elevators shall open into an elevator lobby in accordance with Sections 403.6.2.10.1 through 403.6.2.10.5.

**Exception:** Elevator lobbies are not required for elevators with pressurized hoistways. Signage required by Section 403.6.2.10.5 shall be provided.

**403.6.2.10.1 Access.** The occupant evacuation elevator lobby shall have direct access to an *exit enclosure*.

**403.6.2.10.2 Lobby enclosure.** The occupant evacuation elevator lobby shall be enclosed with a *smoke barrier* having a minimum 1-hour *fire-resistance rating*, except that lobby doorways shall comply with Section 403.6.2.10.3.

**Exception:** Enclosed occupant evacuation elevator lobbies are not required at the level(s) of *exit discharge*.

**403.6.2.10.3 Lobby doorways.** Each occupant evacuation elevator lobby shall be provided with a doorway that is protected with a 3/4-hour *fire door assembly* complying with Section 715.4.

**403.6.2.10.3.1 Vision panel.** A vision panel shall be installed in each *fire door assembly* protecting the lobby doorway. The vision panel shall consist of fire-protection-rated glazing and shall be located to furnish clear vision of the occupant evacuation elevator lobby.

**403.6.2.10.3.2 Door closing.** Each *fire door assembly* protecting the lobby doorway shall be automatic-closing upon receipt of any fire alarm signal from the emergency voice/alarm communication system serving the building.

**403.6.2.10.4 Lobby size.** Each occupant evacuation elevator lobby shall have minimum floor area as follows:



1. The occupant evacuation elevator lobby floor area shall accommodate, at 3 square feet (0.28m<sup>2</sup>) per person, a minimum of 25 percent of the *occupant load* of the floor area served by the lobby.

2. The occupant evacuation elevator lobby floor area also shall accommodate one *wheelchair space* of 30 inches by 48 inches (760 mm by 1220 mm) for each 50 persons, or portion thereof, of the *occupant load* of the floor area served by the lobby.

**Exception:** The size of lobbies serving multiple banks of elevators shall have the minimum floor area *approved* on an individual basis and shall be consistent with the building's fire safety and evacuation plan.

**403.6.2.10.5 Signage.** An *approved* sign indicating elevators are suitable for occupant self-evacuation shall be posted on all floors adjacent to each elevator call station serving occupant evacuation elevators.

**403.6.2.11 Lobby status indicator.** Each occupant evacuation elevator lobby shall be equipped with a status indicator arranged to display all of the following information:

1. An illuminated green light and the message, "Elevators available for occupant evacuation" when the elevators are operating in normal service and the fire alarm system is indicating an alarm in the building.

2. An illuminated red light and the message, "Elevators out of service, use exit stairs" *when the elevators are in Phase I emergency recall operation in accordance with the requirements in Chapter 30.*

3. No illuminated light or message when the elevators are operating in normal service.

**403.6.2.12 Two-way communication system.** A two-way communication system shall be provided in each occupant evacuation elevator lobby for the purpose of initiating communication with the fire command center or an alternative location *approved* by the fire department. For elevators with pressurized hoistways, the two-way communication system shall be located adjacent to the hoistway doors.

**403.6.2.12.1 Design and installation.** The two-way communication system shall include audible and visible signals and shall be designed and installed in accordance with the requirements of ICC A117.1.

**403.6.2.12.2 Instructions.** Instructions for the use of the two-way communication system along with the location of the station shall be permanently located adjacent to each station. Signage shall comply with the ICC A117.1 requirements for visual characters.

**403.6.2.13 Elevator system monitoring.** The occupant evacuation elevators shall be continuously monitored at the fire command center or a central control point *approved* by the fire department and arranged to display all of the following information:

1. Floor location of each elevator car.
2. Direction of travel of each elevator car.
3. Status of each elevator car with respect to whether it is occupied.
4. Status of normal power to the elevator equipment, elevator controller cooling equipment, and elevator machine room ventilation and cooling equipment.

1 5. Status of emergency power system that provides backup power to the elevator equipment,  
2 elevator controller cooling equipment, and elevator machine room ventilation and cooling  
3 equipment.

4 6. Activation of any fire alarm-initiating device in any elevator lobby, elevator machine room or  
5 machine space, or elevator hoistway.

6  
7 **403.6.2.13.1 Elevator recall.** The fire command center or an alternative location *approved* by the  
8 fire department shall be provided with the means to manually initiate a Phase I Emergency Recall  
9 of the occupant evacuation elevators in accordance with Chapter 30.

10 **403.6.2.14 Electrical power.** Emergency power systems shall be provided in accordance with  
11 Section 403.4.8.

12  
13 **403.6.2.14.1 Protection of wiring or cables.** Wires or cables that provide normal and emergency  
14 power, control signals, communication with the car, lighting, heating, air conditioning,  
15 ventilation and fire-detecting systems to occupant evacuation elevators shall be protected by  
16 construction having a minimum 1-hour *fire-resistance rating* or shall be circuit integrity cable  
17 having a minimum 1-hour *fire-resistance rating*.

18  
19 **403.7 Emergency operational plan.** Prior to the issuance of a Certificate of Occupancy, the  
20 owner-occupant of the building shall assign a responsible person as the building's Fire Safety  
21 Director to work with the fire code official in establishing an operational plan for the building.  
22 The operational plan shall contain the guidelines and procedures to be followed and  
23 responsibilities of the fire department, building employees, and tenants under emergency  
24 conditions, including special provisions for persons with disabilities. The plan shall also include  
25

procedures for operation, maintenance and testing of the life safety systems and the allowable use and occupancy of each portion of the building. One copy of the operational plan shall be filed with the fire code official, and one shall be posted in the central control station prior to issuance of the Certificate of Occupancy.

#### **403.8 Signs.**

**403.8.1 Elevator lobbies.** A sign shall be posted in every elevator lobby above each hall call fixture noting that the elevators will be recalled to the building lobby on fire alarm.

**Exception:** If approved by the building official, signs need not be posted in lobbies at the main egress level if the means of egress are obviously identifiable.

**403.8.2 Recall floor lobbies.** A sign indicating the number of each elevator shall be posted and maintained in the elevator lobby at each designated recall floor and at alternate floors of recall, if provided.

**403.8.3 Stair re-entry signs.** A sign shall be posted on each floor landing within a stairway indicating where re-entry is provided into the building or indicating the location of telephones or other means of two-way communication.

**403.8.4 Other signs.** Other signs required by this code, including but not limited to stairway identification signs required by Section 1022.8 and exit signs required by Section 1011, shall be provided.

## **SECTION 404**

### **ATRIUMS**

1 **404.1 General.** In other than Group H occupancies, and where permitted by Exception 5 in  
2 Section 708.2, the provisions of this section shall apply to buildings or structures containing  
3 vertical openings defined herein as “Atriums.”

4 **404.1.1 Definition.** The following word and term shall, for the purposes of this chapter and as  
5 used elsewhere in this code, have the meaning shown herein.  
6

7 **ATRIUM.** An opening connecting two or more *stories* other than enclosed *stairways*, elevators,  
8 hoistways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed  
9 at the top and not defined as a mall. Stories, as used in this definition, do not include balconies  
10 within assembly groups or *mezzanines* that comply with Section 505.  
11

12 **404.1.2 Predesign Conference.** A predesign conference is required for atriums connecting more  
13 than two stories. At least 60 days prior to application, the applicant shall arrange a predesign  
14 conference with the design team, the building official and the fire code official, to review the  
15 proposed smoke control and life safety systems for the building. The purpose of the meeting is to  
16 obtain conceptual approval from the building official and the fire code official of the proposed  
17 systems and to allow for a design based upon the latest state-of-the-art.  
18

19 The building official and fire code official are permitted to require sufficient documentation,  
20 based upon appropriate analyses, that the concept meets the intent of nationally recognized good  
21 practices. The building permit shall not be issued until the building official and fire code official  
22 have approved in writing the smoke control and life safety systems for the building. A summary  
23 of the substance of predesign meeting shall documented on the building plans and become a  
24 permanent part of the Department of Planning and Development's records.  
25  
26  
27  
28

\*\*\*

**[F] 404.3 Automatic sprinkler protection.** An *approved automatic sprinkler system* shall be installed throughout the entire building.

**Exceptions:**

1. That area of a building adjacent to or above the atrium need not be sprinklered provided that portion of the building is separated from the atrium portion by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both.

2. Where the ceiling of the atrium is more than 55 feet (16 764 mm) above ~~((the floor))~~ any floor area open to the atrium, sprinkler protection at the ceiling of the atrium is not required.

\*\*\*

**404.6 Enclosure of atriums.** Atrium spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 712, or both.

**Exceptions:**

1. A glass wall forming a smoke partition where automatic sprinklers are spaced 6 feet (1829 mm) or less along both sides of the separation wall, or on the room side only if there is not a walkway on the atrium side, and between 4 inches and 12 inches (102mm and 305 mm) away from the glass and designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction. The glass shall be installed in a gasketed frame so that the

framing system deflects without breaking (loading) the glass before the sprinkler system operates.

2. A glass-block wall assembly in accordance with Section 2110 and having a 3/4-hour *fire protection rating*.

3. The adjacent spaces of any three *floors* of the atrium shall not be required to be separated from the atrium where such spaces are accounted for in the design of the smoke control system.

**Code Alternate CA404.6:** The separation between the atrium and tenant spaces that are not guest rooms or dwelling units is permitted to be omitted on four floors when:

1. The building is of Type IA or IB construction;

2. The perimeter of the opening is protected by draft curtains and a row of automatic sprinkler heads not more than 6 feet (1829 mm) on center as required for escalator protection;

3. All spaces of the building separated from the atrium by less than 1-hour fire-resistive construction are equipped with an automatic smoke detection system;

4. Tenant spaces open to the atrium have access to two enclosed exits separated by one-half the building diagonal with one exit located so that occupants can exit in a direction away from the atrium. For the purpose of this requirement "away from the atrium" means not being forced to exit parallel and adjacent to the atrium opening. "Areas open to the atrium" are those areas that are not separated from the atrium with at least a 1-hour fire barrier.

[F] 404.7 ((Standby)) **Emergency power.** Equipment required to provide smoke control shall be connected to ((a standby)) an emergency power system in accordance with Section 909.11.

**Code Alternate CA404.7:** An emergency power system is not required for smoke control systems in buildings that have at least two exits and atriums with a total volume of less than 40,000 cubic feet (1133 m<sup>3</sup>).

\*\*\*

## SECTION 405

### UNDERGROUND BUILDINGS

**405.1 General.** The provisions of this section apply to building spaces having a floor level used for human occupancy more than 30 feet (9144 mm) below the finished floor of the lowest *level of exit discharge*.

#### **Exceptions:**

1. One- and two-family *dwelling*s, sprinklered in accordance with Section 903.3.1.3.
2. Parking garages with automatic sprinkler systems in compliance with Section 405.3.
3. Fixed guideway transit systems that comply with NFPA 130 as amended.
4. Grandstands, *bleachers*, stadiums, arenas and similar facilities.
5. Where the lowest *story* is the only *story* that would qualify the building as an underground building and has an area not exceeding 1,500 square feet (139 m<sup>2</sup>) and has an *occupant load* less than 10.
6. Pumping stations and other similar mechanical spaces intended only for limited periodic use by service or maintenance personnel.



\*\*\*

**[F] 405.8 No requirements** ~~((Standby power. A standby power system complying with Chapter 27 shall be provided standby power loads specified in Section 405.8.1.~~

**[F] 405.8.1 Standby power loads.** The following loads are classified as standby power loads:

1. ~~Smoke control system.~~

2. ~~Ventilation and automatic fire detection equipment for smokeproof enclosures.~~

3. ~~Fire pumps.~~

~~Standby power shall be provided for elevators in accordance with Section 3003.~~

**[F] 405.8.2 Pick-up time.** ~~The standby power system shall pick up its connected loads within 60 seconds of failure of the normal power supply.))~~

**[F] 405.9 Emergency power.** An emergency power system complying with Chapter 27 shall be provided for emergency power loads specified in Section 405.9.1.

**[F] 405.9.1 Emergency power loads.** The following loads are classified as emergency power loads:

1. Emergency voice/alarm communications systems.

2. Fire alarm systems.

3. Automatic fire detection systems.

4. Elevator car lighting.

5. *Means of egress* and exit sign illumination as required by Chapter 10.

6. Smoke control systems.

7. Ventilation and automatic fire detection equipment for smokeproof enclosures.

8. Fire pumps.

9. A selected elevator in each bank in accordance with Section 3016.6. A bank of elevators is a group of elevators or a single elevator controlled by a common operating system .All elevators that respond to a single call button constitute a bank of elevators. All elevators shall be transferable to an emergency power system.

**Note:** There is no limit on the number of cars that are permitted to be in a bank, but no more than four cars are permitted within a common hoistway. See Section 3016.7.

\*\*\*

**SECTION 406**

**MOTOR-VEHICLE-RELATED OCCUPANCIES**

\*\*\*

**406.2 Parking garages.**

**406.2.1 Classification.** Parking garages shall be classified as either open, as defined in Section 406.3, or enclosed and shall meet the appropriate criteria in Section 406.4. Also see Section 509 for special provisions for parking garages.

**406.2.2 Clear height.** The clear height of each floor level in vehicle and pedestrian traffic areas shall not be less than ~~((7 feet (2134 mm)))~~ 6 feet 6 inches (1981 mm). Vehicle and pedestrian areas accommodating van-accessible parking required by Section 1106.5 shall conform to ICC A117.1.

**406.2.3 Guards.** *Guards* shall be provided in accordance with Section 1013. *Guards* serving as vehicle barrier systems shall comply with Sections 406.2.4 and 1013.

**406.2.4 Vehicle barrier systems.** Vehicle barrier systems not less than 2 feet 9 inches (835 mm) high shall be placed at the end of drive lanes, and at the end of parking spaces where the vertical distance to the ground or surface directly below is greater than 1 foot (305 mm). Vehicle barrier systems shall comply with the loading requirements of Section 1607.7.3.

**Exception:** Vehicle storage compartments in a mechanical access parking garage.

**406.2.5 Ramps.** Vehicle ramps shall not be considered as required *exits* unless pedestrian facilities are provided.

Vehicle ramps that are utilized for vertical circulation as well as for parking shall not exceed a slope of 1:15 (6.67 percent).

**406.2.6 Floor surface.** Parking surfaces shall be of concrete or similar noncombustible and nonabsorbent materials. ~~((The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.))~~

**Exception((s)):**

~~((1.))~~ Asphalt parking surfaces shall be permitted at ground level.

~~((2. Floors of Group S-2 parking garages shall not be required to have a sloped surface.))~~

**406.2.7 Mixed occupancy separation.** Parking garages shall be separated from other occupancies in accordance with Section 508.1.

**406.2.8 Special hazards.** Connection of a parking garage with any room in which there is a fuel-fired appliance shall be by means of a vestibule providing a two-doorway separation.

**Exception:** A single door shall be allowed provided the sources of ignition in the appliance are at least 18 inches (457 mm) above the floor.

**406.2.9 Attached to rooms.** Openings from a parking garage directly into a room used for sleeping purposes shall not be permitted.

**406.3 Open parking garages.**

**406.3.1 Scope.** Except where specific provisions are made in Sections 406.3.2 through 406.3.13, other requirements of this code shall apply.

**406.3.2 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**MECHANICAL-ACCESS OPEN PARKING GARAGES.** *Open parking garages* employing parking machines, lifts, elevators or other mechanical devices for vehicles moving from and to street level and in which public occupancy is prohibited above the street level.

**OPEN PARKING GARAGE.** A structure or portion of a structure with the openings as described in Section 406.3.3.1 on two or more sides that is used for the parking or storage of private motor vehicles as described in Section 406.3.4.

**RAMP-ACCESS OPEN PARKING GARAGES.** *Open parking garages* employing a series of continuously rising floors or a series of interconnecting ramps between floors permitting the movement of vehicles under their own power from and to the street level.

1 **406.3.3 Construction.** *Open parking garages* shall be of Type I, II or IV construction. *Open*  
2 *parking garages* shall meet the design requirements of Chapter 16. For vehicle barrier systems,  
3 see Section 406.2.4.

4 **406.3.3.1 Openings.** For natural ventilation purposes, the exterior side of the structure shall have  
5 uniformly distributed openings on two or more sides. The area of such openings in *exterior walls*  
6 on a tier must be at least 20 percent of the total perimeter wall area of each tier. The aggregate  
7 length of the openings considered to be providing natural ventilation shall constitute a minimum  
8 of 40 percent of the perimeter of the tier. Interior walls shall be at least 20 percent open with  
9 uniformly distributed openings.  
10

11 **Exception:** Openings are not required to be distributed over 40 percent of the building perimeter  
12 where the required openings are uniformly distributed over two opposing sides of the building.  
13

14 **406.3.4 Uses.** Mixed uses shall be allowed in the same building as an *open parking garage*  
15 subject to the provisions of Sections 402.7.1, 406.3.13, 508.1, 509.3, 509.4 and 509.7.  
16

17 **406.3.5 Area and height.** Area and height of *open parking garages* shall be limited as set forth  
18 in Chapter 5 for Group S-2 occupancies and as further provided for in Section 508.1.

19 **406.3.5.1 Single use.** When the *open parking garage* is used exclusively for the parking or  
20 storage of private motor vehicles, with no other uses in the building, the area and height shall be  
21 permitted to comply with Table 406.3.5, along with increases allowed by Section 406.3.6.  
22

23 **Exception:** The grade-level tier is permitted to contain an office, waiting and toilet rooms having  
24 a total combined area of not more than 1,000 square feet (93 m<sup>2</sup>). Such area need not be  
25 separated from the *open parking garage*.  
26

1 In *open parking garages* having a spiral or sloping floor, the horizontal projection of the  
2 structure at any cross section shall not exceed the allowable area per parking tier. In the case of  
3 an *open parking garage* having a continuous spiral floor, each 9 feet 6 inches (2896 mm) of  
4 height, or portion thereof, shall be considered a tier.

5 The clear height of a parking tier in vehicle and pedestrian areas shall not be less than ((7 feet  
6 (2134 mm))) 6 feet 6 inches (1981 mm), except that a lower clear height is permitted in  
7 mechanical-access *open parking garages* where *approved* by the *building official*.

8  
9 **406.3.6 Area and height increases.** The allowable area and height of *open parking garages*  
10 shall be increased in accordance with the provisions of this section. Garages with sides open on  
11 three-fourths of the building's perimeter are permitted to be increased by 25 percent in area and  
12 one tier in height. Garages with sides open around the entire building's perimeter are permitted to  
13 be increased by 50 percent in area and one tier in height. For a side to be considered open under  
14 the above provisions, the total area of openings along the side shall not be less than 50 percent of  
15 the interior area of the side at each tier and such openings shall be equally distributed along the  
16 length of the tier.  
17

18  
19 Allowable tier areas in Table 406.3.5 shall be increased for *open parking garages* constructed  
20 to heights less than the table maximum. The gross tier area of the garage shall not exceed that  
21 permitted for the higher structure. At least three sides of each such larger tier shall have  
22 continuous horizontal openings not less than 30 inches (762 mm) in clear height extending for at  
23 least 80 percent of the length of the sides and no part of such larger tier shall be more than 200  
24 feet (60 960 mm) horizontally from such an opening. In addition, each such opening shall face a  
25  
26  
27  
28

street or *yard* accessible to a street with a width of at least 30 feet (9144 mm) for the full length of the opening, and standpipes shall be provided in each such tier.

*Open parking garages* of Type II construction, with all sides open, shall be unlimited in allowable area where the *building height* does not exceed 75 feet (22 860 mm). For a side to be considered open, the total area of openings along the side shall not be less than 50 percent of the interior area of the side at each tier and such openings shall be equally distributed along the length of the tier. All portions of tiers shall be within 200 feet (60 960 mm) horizontally from such openings or other natural ventilation openings as defined in Section 406.3.3.1. These openings shall be permitted to be provided in *courts* with a minimum dimension of 20 feet (6096 mm) for the full width of the openings.

**406.3.7 Fire separation distance.** *Exterior walls* and openings in *exterior walls* shall comply with Tables 601 and 602. The distance to an adjacent *lot line* shall be determined in accordance with Table 602 and Section 705.

**406.3.8 Means of egress.** Where persons other than parking attendants are permitted, *open parking garages* shall meet the *means of egress* requirements of Chapter 10. Where no persons other than parking attendants are permitted, there shall not be less than two 36-inch-wide (914 mm) *exit stairways*. Lifts shall be permitted to be installed for use of employees only, provided they are completely enclosed by noncombustible materials.

**406.3.9 Standpipes.** Standpipes shall be installed where required by the provisions of Chapter 9.

**406.3.10 Sprinkler systems.** Where required by other provisions of this code, *automatic sprinkler systems* and standpipes shall be installed in accordance with the provisions of Chapter 9.

**406.3.11 Enclosure of vertical openings.** Enclosure shall not be required for vertical openings except as specified in Section 406.3.8.

**406.3.12 Ventilation.** Ventilation, other than the percentage of openings specified in Section 406.3.3.1, shall not be required.

**406.3.13 Prohibitions.** The following uses and alterations are not permitted:

1. Vehicle repair work.
2. Parking of buses, trucks and similar vehicles.
3. Partial or complete closing of required openings in exterior walls by tarpaulins or any other means.
4. Dispensing of fuel.

\*\*\*

## SECTION 407

### GROUP I-2

\*\*\*

**407.2 Corridors.** *Corridors* in occupancies in Group I-2 shall be continuous to the *exits* and separated from other areas in accordance with Section 407.3 except spaces conforming to Sections 407.2.1 through 407.2.4.



**407.2.1 Waiting and similar areas.** Waiting areas and similar spaces constructed as required for *corridors* shall be permitted to be open to a *corridor*, only where all of the following criteria are met:

1. The spaces are not occupied for patient *sleeping units*, treatment rooms, hazardous or incidental (~~((accessory occupancies))~~) uses in accordance with Section 508.2.
2. The open space is protected by an automatic fire detection system installed in accordance with Section 907.
3. The *corridors* onto which the spaces open, in the same smoke compartment, are protected by an automatic fire detection system installed in accordance with Section 907, or the smoke compartment in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
4. The space is arranged so as not to obstruct access to the required *exits*.

**407.2.2 Nurses' stations.** Spaces for doctors' and nurses' charting, communications and related clerical areas shall be permitted to be open to the *corridor*, when such spaces are constructed as required for *corridors*.

**407.2.3 Mental health treatment areas.** Areas wherein mental health patients who are not capable of self-preservation are housed, or group meeting or multipurpose therapeutic spaces other than incidental (~~((accessory occupancies))~~) uses in accordance with Section 508.2.5, under continuous supervision by facility staff, shall be permitted to be open to the *corridor*, where the following criteria are met:

1. Each area does not exceed 1,500 square feet (140m<sup>2</sup>).
  2. The area is located to permit supervision by the facility staff.
  3. The area is arranged so as not to obstruct any access to the required *exits*.
  4. The area is equipped with an automatic fire detection system installed in accordance with Section 907.2.
  5. Not more than one such space is permitted in any one smoke compartment.
  6. The walls and ceilings of the space are constructed as required for *corridors*.
- 407.2.4 Gift shops.** Gift shops less than 500 square feet (46.5 m<sup>2</sup>) in area shall be permitted to be open to the *corridor* provided the gift shop and storage areas are fully sprinklered and storage areas are protected in accordance with Section 508.2.5.

\*\*\*

## SECTION 412

### AIRCRAFT-RELATED OCCUPANCIES

\*\*\*

#### **412.3 Airport traffic control towers.**

**412.3.1 General.** The provisions of Sections 412.3.1 through 412.3.6 shall apply to airport traffic control towers not exceeding 1,500 square feet (140m<sup>2</sup>) per floor occupied only for the following uses:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.

1 4. Office spaces incidental to the tower operation.

2 5. Lounges for employees, including sanitary facilities.

3 **412.3.2 Type of construction.** Airport traffic control towers shall be constructed to comply with  
4 the height and area limitations of Table 412.3.2.

5 **412.3.3 Egress.** A minimum of one *exit stairway* shall be permitted for airport traffic control  
6 towers of any height provided that the *occupant load* per floor does not exceed 15. The *stairway*  
7 shall conform to the requirements of Section 1009. The *stairway* shall be separated from  
8 elevators by a minimum distance of one-half of the diagonal of the area served measured in a  
9 straight line. The *exit stairway* and elevator hoistway are permitted to be located in the same  
10 shaft enclosure, provided they are separated from each other by a 4-hour *fire barrier* having no  
11 openings. Such *stairway* shall be pressurized to a minimum of 0.15 inch of water column (43 Pa)  
12 and a maximum of 0.35 inch of water column (101 Pa) in the shaft relative to the building with  
13 stairway doors closed. *Stairways* need not extend to the roof as specified in Section 1009.11. The  
14 provisions of Section 403 do not apply.

15 ~~((Exception: Smokeproof enclosures as set forth in Section 1022.9 are not required where  
16 required stairways are pressurized.))~~

17 **[F] 412.3.4 Automatic fire detection systems.** Airport traffic control towers shall be provided  
18 with an automatic fire detection system installed in accordance with Section 907.2.

19 **[F] 412.3.5 Legally required standby ((Standby)) power system.** A legally required standby  
20 power system that conforms to Chapter 27 shall be provided in airport traffic control towers more  
21 than 65 feet (19 812 mm) in height.

Power shall be provided to the following equipment:

1. Pressurization equipment, mechanical equipment and lighting.
2. Elevator operating equipment.
3. Fire alarm and smoke detection systems.

**412.3.6 Accessibility.** Airport traffic control towers need not be *accessible* as specified in the provisions of Chapter 11.

**412.4 Aircraft hangars.** Aircraft hangars shall be in accordance with Sections 412.4.1 through 412.4.6.

**412.4.1 Exterior walls.** *Exterior walls* located less than 30 feet (9144 mm) from *lot lines* or a *public way* shall have a *fire-resistance rating* not less than 2 hours.

**412.4.2 Basements.** Where hangars have basements, floors over basements shall be of Type IA construction and shall be made tight against seepage of water, oil or vapors. There shall be no opening or communication between basements and the hangar. Access to basements shall be from outside only.

**412.4.3 Floor surface.** Floors shall be graded and drained to prevent water or fuel from remaining on the floor. Floor drains shall discharge through an oil separator to the sewer or to an outside vented sump.

**Exception:** Aircraft hangars with individual lease spaces not exceeding 2,000 square feet (186 m<sup>2</sup>) each in which servicing, repairing or washing is not conducted and fuel is not dispensed shall have floors that are graded toward the door, but shall not require a separator.

**412.4.4 Heating equipment.** Heating equipment shall be placed in another room separated by 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both. Entrance shall be from the outside or by means of a vestibule providing a two-doorway separation.

**Exceptions:**

1. Unit heaters and vented infrared radiant heating equipment suspended at least 10 feet (3048 mm) above the upper surface of wings or engine enclosures of the highest aircraft that are permitted to be housed in the hangar and at least 8 feet (2438 mm) above the floor in shops, offices and other sections of the hangar communicating with storage or service areas.
2. A single interior door shall be allowed, provided the sources of ignition in the appliances are at least 18 inches (457 mm) above the floor.

**412.4.5 Finishing.** The process of “doping,” involving use of a volatile flammable solvent, or of painting, shall be carried on in a separate detached building equipped with automatic fire-extinguishing equipment in accordance with Section 903.

**412.4.6 Fire suppression.** Aircraft hangars shall be provided with a fire suppression system designed in accordance with NFPA409, based upon the classification for the hangar given in Table 412.4.6.

**Exception:** When a fixed base operator has separate repair facilities on site, Group II hangars operated by a fixed base operator used for storage of transient aircraft only shall have a fire suppression system, but the system is exempt from foam requirements.

**412.4.6.1 Hazardous operations.** Any Group III aircraft hangar according to Table 412.4.6 that contains hazardous operations including, but not limited to, the following shall be provided with a Group I or II fire suppression system in accordance with NFPA 409 as applicable:

1. Doping.
2. Hot work including, but not limited to, welding, torch cutting and torch soldering.
3. Fuel transfer.
4. Fuel tank repair or maintenance not including defueled tanks in accordance with NFPA 409, inerted tanks or tanks that have never been fueled.
5. Spray finishing operations.
6. Total fuel capacity of all aircraft within the unsprinklered single *fire area* in excess of 1,600 gallons (6057 L).
7. Total fuel capacity of all aircraft within the maximum single *fire area* in excess of 7,500 gallons (28 390 L) for a hangar with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

**412.4.6.2 Separation of maximum single fire areas.** Maximum single *fire areas* established in accordance with hangar classification and construction type in Table 412.4.6 shall be separated by 2-hour *fire walls* constructed in accordance with Section 706.

**412.4.6.3 Restrictions in the Fire District.** Aircraft hangars shall not be located in the Fire District defined in Section 401.2 unless work is limited to exchange of parts and maintenance requiring no open flame or welding.

\*\*\*

**412.7 Heliports and helistops.** Heliports and helistops shall be permitted to be erected on buildings or other locations where they are constructed in accordance with Sections 412.7.1 through 412.7.4.

**412.7.1 Size.** The landing area for helicopters less than 3,500 pounds (1588 kg) shall be a minimum of 20 feet (6096 mm) in length and width. The landing area shall be surrounded on all sides by a clear area having a minimum average width at roof level of 15 feet (4572 mm) but with no width less than 5 feet (1524 mm).

**412.7.2 Design.** Helicopter landing areas and the supports thereof on the roof of a building shall be noncombustible construction. Landing areas shall be designed to confine any flammable liquid spillage to the landing area itself and provisions shall be made to drain such spillage away from any *exit* or *stairway* serving the helicopter landing area or from a structure housing such *exit* or *stairway*. For structural design requirements, see Section 1605.4.

**412.7.3 Means of egress.** The *means of egress* from heliports and helistops shall comply with the provisions of Chapter 10. Landing areas located on buildings or structures shall have two or more *means of egress*. For landing areas less than 60 feet (18 288 mm) in length or less than 2,000 square feet (186 m<sup>2</sup>) in area, the second *means of egress* is permitted to be a fire escape, *alternating tread device* or ladder leading to the floor below.

**412.7.4 Rooftop heliports and helistops.** Rooftop heliports and helistops shall comply with NFPA 418.

**412.7.5 Restrictions in the Fire District.** Heliports shall not be located in the Fire District defined in Section 401.2.

\*\*\*

## SECTION 413

### COMBUSTIBLE STORAGE

\*\*\*

**413.3 Mini-storage warehouses.** In mini-storage warehouse buildings, individual storage lockers shall be separated from each other with fire partitions.

**Exception:** The separation between individual storage lockers is permitted to be non-rated in rooms 500 square feet (46 m<sup>2</sup>) or less in area and in sprinklered rooms of any size.

## SECTION 414

### HAZARDOUS MATERIALS

**[F] 414.1 General.** The provisions of Sections 414.1 through 414.7 shall apply to buildings and structures occupied for the manufacturing, processing, dispensing, use or storage of hazardous materials.

**[F] 414.1.1 Other provisions.** Buildings and structures with an occupancy in Group H shall also comply with the applicable provisions of Section 415 and the *International Fire Code*.

**[F] 414.1.2 Materials.** The safe design of hazardous material occupancies is material dependent. Individual material requirements are also found in Sections 307 and 415, and in the *International Mechanical Code* and the *International Fire Code*.

**[F] 414.1.2.1 Aerosols.** Level 2 and 3 aerosol products shall be stored and displayed in accordance with the



1 *International Fire Code*. See Section 311.2 and the *International Fire Code* for occupancy group  
2 requirements.

3 **[F] 414.1.3 Information required.** A report shall be submitted to the *building official*  
4 identifying the maximum expected quantities of hazardous materials to be stored, used in a  
5 closed system and used in an *open system*, and subdivided to separately address hazardous  
6 material classification categories based on Tables 307.1(1) and 307.1(2). The methods of  
7 protection from such hazards, including but not limited to *control areas*, fire protection systems  
8 and Group H occupancies shall be indicated in the report and on the *construction documents*. The  
9 opinion and report shall be prepared by a qualified person, firm or corporation *approved* by the  
10 *building official* and provided without charge to the enforcing agency.  
11  
12

13 For buildings and structures with an occupancy in Group H, separate floor plans shall be  
14 submitted identifying the locations of anticipated contents and processes so as to reflect the  
15 nature of each occupied portion of every building and structure.  
16

17 **414.1.4 Pre-design conference.** Prior to application for a permit for a Group H-5 Occupancy, the  
18 applicant shall arrange a pre-design conference with the design team, the building official and  
19 fire code official to review proposed emergency life safety systems for the building and the  
20 appropriate protection of the life safety systems. For Group H-4 occupancies, a pre-design  
21 conference is recommended. The purpose of the meeting is to obtain conceptual approval from  
22 the building official and the fire code official of the proposed systems and to allow for design  
23 based upon the latest state-of-the-art.  
24  
25  
26  
27  
28

1 Applicants shall bring to the conference preliminary building plans and a draft of the Hazardous  
2 Materials Management Plan. The building official and fire code official are authorized to require  
3 sufficient documentation, based upon appropriate analyses, that the proposal meets the intent of  
4 nationally-recognized good practices. The building permit shall not be issued until the building  
5 official and fire code official have approved, in writing, the emergency life safety systems for the  
6 building and the appropriate protection of the life safety systems. The documentation of the pre-  
7 design meeting shall be reflected on the plans for the building and become a permanent part of  
8 the Department of Planning and Development's records.

10 \*\*\*

11 [F] **414.5 Inside storage, dispensing and use.** The inside storage, dispensing and use of  
12 hazardous materials in excess of the maximum allowable quantities per *control area* of Tables  
13 307.1(1) and 307.1(2) shall be in accordance with Sections 414.5.1 through 414.5.5 of this code  
14 and the *International Fire Code*.

15 [F] **414.5.1 Explosion control.** Explosion control shall be provided in accordance with the  
16 *International Fire Code* as required by Table 414.5.1 where quantities of hazardous materials  
17 specified in that table exceed the maximum allowable quantities in Table 307.1(1) or where a  
18 structure, room or space is occupied for purposes involving explosion hazards as required by  
19 Section 415 or the *International Fire Code*.

20 [F] **414.5.2 Monitor control equipment.** Monitor control equipment shall be provided where  
21 required by the *International Fire Code*.

1 [F] **414.5.3 Automatic fire detection systems.** Group H occupancies shall be provided with an  
2 automatic fire detection system in accordance with Section 907.2.

3 [F] **414.5.4 Standby or emergency power.** Where mechanical ventilation, treatment systems,  
4 temperature control, alarm, detection or other electrically operated systems are required, such  
5 systems shall be provided with an emergency or legally required standby power system in  
6 accordance with Chapter 27 and the *International Fire Code*.

8 **Exceptions:**

- 9 1. Mechanical ventilation for storage of Class IB and Class IC flammable and combustible  
10 liquids in closed containers not exceeding 6.5 gallons (25 L) capacity.  
11  
12 2. Storage areas for Class 1 and 2 oxidizers.  
13  
14 3. Storage areas for Class II, III, IV and V organic peroxides.  
15  
16 4. Storage, use and handling areas for asphyxiant, irritant and radioactive gases.  
17  
18 5. For storage, use and handling areas for *highly toxic* or *toxic* materials, see Sections 3704.2.2.8  
19 and 3704.3.4.2 of the *International Fire Code*.  
20  
21 6. ((Standby)) Legally required standby power systems for mechanical ventilation, treatment  
22 systems and temperature control systems shall not be required where an *approved* fail-safe  
23 engineered system is installed.  
24  
25

26 [F] **414.5.5 Spill control, drainage and containment.** Rooms, buildings or areas occupied for  
27 the storage of solid and liquid hazardous materials shall be provided with a means to control  
28 spillage and to contain or drain off spillage and fire protection water discharged in the storage

area where required in the *International Fire Code*. The methods of spill control shall be in accordance with the *International Fire Code*.

\*\*\*

## SECTION 415

### GROUPS H-1, H-2, H-3, H-4 AND H-5

\*\*\*

**[F] 415.3 Fire separation distance.** Group H occupancies shall be located on property in accordance with the other provisions of this chapter. In Groups H-2 and H-3, not less than 25 percent of the perimeter wall of the occupancy shall be an *exterior wall*.

#### **Exceptions:**

1. Liquid use, dispensing and mixing rooms having a floor area of not more than 500 square feet (46.5 m<sup>2</sup>)

need not be located on the outer perimeter of the building where they are in accordance with the *International Fire Code* and NFPA 30.

2. Liquid storage rooms having a floor area of not more than 1,000 square feet (93 m<sup>2</sup>) need not be located on the outer perimeter where they are in accordance with the *International Fire Code* and NFPA 30.

3. Spray paint booths that comply with the *International Fire Code* need not be located on the outer perimeter.

**[F] 415.3.1 Group H occupancy minimum fire separation distance.** Regardless of any other provisions, buildings containing Group H occupancies shall be set back to the minimum *fire*

1 *separation distance* as set forth in Items 1 through 4 below. Distances shall be measured from the  
2 walls enclosing the occupancy to *lot lines*, including those on a *public way*. Distances to assumed  
3 *lot lines* established for the purpose of determining *exterior wall* and opening protection are not  
4 to be used to establish the minimum *fire separation distance* for buildings on sites where  
5 explosives are manufactured or used when separation is provided in accordance with the quantity  
6 distance tables specified for explosive materials in the *International Fire Code*.

7  
8 1. Group H-1. Not less than 75 feet (22 860 mm) and not less than required by the *International*  
9 *Fire Code*.

10 **Exceptions:**

11 ~~((1. Fireworks manufacturing buildings separated in accordance with NFPA 1124.))~~  
12

13 2. Buildings containing the following materials when separated in accordance with Table  
14 415.3.1:

15 2.1. Organic peroxides, unclassified detonable.

16 2.2. Unstable reactive materials, Class 4.

17 2.3. Unstable reactive materials, Class 3 detonable.

18 2.4. Detonable pyrophoric materials.

19  
20 2. Group H-2. Not less than 30 feet (9144 mm) where the area of the occupancy exceeds 1,000  
21 square feet (93 m<sup>2</sup>) and it is not required to be located in a detached building.

22  
23 3. Groups H-2 and H-3. Not less than 50 feet (15 240 mm) where a detached building is required  
24 (see Table 415.3.2).

4. Groups H-2 and H-3. Occupancies containing materials with explosive characteristics shall be separated as required by the *International Fire Code*. Where separations are not specified, the distances required shall not be less than the distances required by Table 415.3.1.

**[F] 415.3.2 Detached buildings for Group H-1, H-2 or H-3 occupancy.** The storage of hazardous materials in excess of those amounts listed in Table 415.3.2 shall be in accordance with the applicable provisions of Sections 415.4 and 415.5. Where a detached building is required by Table 415.3.2, there are no requirements for wall and opening protection based on *fire separation distance*.

\*\*\*

**[F] 415.4 Special provisions for Group H-1 occupancies.** Group H-1 occupancies shall be in buildings used for no other purpose, shall not exceed one *story* in height and be without basements, crawl spaces or other under-floor spaces. Roofs shall be of lightweight construction with suitable thermal insulation to prevent sensitive material from reaching its decomposition temperature. Group H-1 occupancies containing materials that are in themselves both physical and health hazards in quantities exceeding the maximum allowable quantities per *control area* in Table 307.1(2) shall comply with requirements for both Group H-1 and H-4 occupancies.

**[F] 415.4.1 Floors in storage rooms.** Floors in storage areas for organic peroxides, pyrophoric materials and unstable (reactive) materials shall be of liquid-tight, noncombustible construction.

**415.4.2 Restrictions in the Fire District.** Group H-1 occupancies shall not be located in the Fire District defined in Section 401.2.

1 **[F] 415.5 Special provisions for Groups H-2 and H-3 occupancies.** Groups H-2 and H-3  
2 occupancies containing quantities of hazardous materials in excess of those set forth in Table  
3 415.3.2 shall be in buildings used for no other purpose, shall not exceed one *story* in height and  
4 shall be without basements, crawl spaces or other under-floor spaces.

5 Groups H-2 and H-3 occupancies containing water-reactive materials shall be resistant to  
6 water penetration. Piping for conveying liquids shall not be over or through areas containing  
7 water reactives, unless isolated by *approved* liquid-tight construction.

8 **Exception:** Fire protection piping.

9 **[F] 415.5.1 Floors in storage rooms.** Floors in storage areas for organic peroxides, oxidizers,  
10 pyrophoric materials, unstable (reactive) materials and water-reactive solids and liquids shall be  
11 of liquid-tight, noncombustible construction.

12 **[F] 415.5.2 Waterproof room.** Rooms or areas used for the storage of water-reactive solids and  
13 liquids shall be constructed in a manner that resists the penetration of water through the use of  
14 waterproof materials. Piping carrying  
15 water for other than *approved* automatic fire sprinkler systems shall not be within such rooms or  
16 areas.

17 **415.5.3 Restrictions in the Fire District.** Group H-2 occupancies having a floor area in excess  
18 of 500 square feet (46 m2) are not permitted in the Fire District. Group H-3 Occupancies having  
19 a floor area in excess of 1,500 square feet (139 m2) are not permitted in the Fire District. See  
20 Section 401.2 for definition of Fire District.

1 [F] **415.6 Group H-2.** Occupancies in Group H-2 shall be constructed in accordance with  
2 Sections 415.6.1 through 415.6.4 and the *International Fire Code*.

3 [F] **415.6.1 Combustible dusts, grain processing and storage.** The provisions of Sections  
4 415.6.1.1 through  
5 415.6.1.6 shall apply to buildings in which materials that produce combustible dusts are stored or  
6 handled. Buildings that store or handle combustible dusts shall comply with the applicable  
7 provisions of NFPA 61, NFPA 85, NFPA 120, NFPA 484, NFPA 654, NFPA 655 and NFPA  
8 664, and the *International Fire Code*.

9  
10 [F] **415.6.1.1 Type of construction and height exceptions.** Buildings shall be constructed in  
11 compliance with  
12 the height and area limitations of Table 503 for Group H-2; except that where erected of Type I  
13 or II construction, the heights and areas of grain elevators and similar structures shall be  
14 unlimited, and where of Type IV construction, the maximum height shall be 65 feet (19 812 mm)  
15 and except further that, in isolated areas, the maximum height of Type IV structures shall be  
16 increased to 85 feet (25 908 mm).  
17

18  
19 [F] **415.6.1.2 Grinding rooms.** Every room or space occupied for grinding or other operations  
20 that produce combustible dusts shall be enclosed with *fire barriers* constructed in accordance  
21 with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both.  
22 The minimum *fire-resistance rating* shall be 2 hours where the area is not more than 3,000  
23 square feet (279 m2), and 4 hours where the area is greater than 3,000 square feet (279 m2).  
24  
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1 **[F] 415.6.1.3 Conveyors.** Conveyors, chutes, piping and similar equipment passing through the  
2 enclosures of rooms or spaces shall be constructed dirt tight and vapor tight, and be of *approved*  
3 noncombustible materials complying with Chapter 30.

4 **[F] 415.6.1.4 Explosion control.** Explosion control shall be provided as specified in the  
5 *International Fire Code*, or spaces shall be equipped with the equivalent mechanical ventilation  
6 complying with the *International Mechanical Code*.  
7

8 **[F] 415.6.1.5 Grain elevators.** Grain elevators, malt houses and buildings for similar  
9 occupancies shall not be located within 30 feet (9144 mm) of interior *lot lines* or structures on  
10 the same lot, except where erected along a railroad right-of-way.  
11

12 **[F] 415.6.1.6 Coal pockets.** Coal pockets located less than 30 feet (9144 mm) from interior *lot*  
13 *lines* or from structures on the same lot shall be constructed of not less than Type IB  
14 construction. Where more than 30 feet  
15 (9144 mm) from interior *lot lines*, or where erected along a railroad right-of-way, the minimum  
16 type of construction of such structures not more than 65 feet (19 812 mm) in *building height*  
17 shall be Type IV.  
18

19 **[F] 415.6.2 Flammable and combustible liquids.** The storage, handling, processing and  
20 transporting of flammable and combustible liquids in Groups H-2 and H-3 occupancies shall be  
21 in accordance with Sections 415.6.2.1 through 415.6.2.10, the *International Mechanical Code*  
22 and the *International Fire Code*.  
23

24 **[F] 415.6.2.1 Mixed occupancies.** Where the storage tank area is located in a building of two or  
25 more occupancies and the quantity of liquid exceeds the maximum allowable quantity for one  
26

1 *control area*, the use shall be completely separated from adjacent occupancies in accordance with  
2 the requirements of Section 508.4.

3 **[F] 415.6.2.1.1 Height exception.** Where storage tanks are located within a building no more  
4 than one *story above grade plane*, the height limitation of Section 503 shall not apply for Group  
5 H.

6 **[F] 415.6.2.2 Tank protection.** Storage tanks shall be noncombustible and protected from  
7 physical damage. *Fire barriers* or *horizontal assemblies* or both around the storage tank(s) shall  
8 be permitted as the method of protection from physical damage.

9 **[F] 415.6.2.3 Tanks.** Storage tanks shall be *approved* tanks conforming to the requirements of  
10 the *International Fire Code*.

11 **[F] 415.6.2.4 Suppression.** Group H shall be equipped throughout with an *approved automatic*  
12 *sprinkler system*, installed in accordance with Section 903.

13 **[F] 415.6.2.5 Leakage containment.** A liquid-tight containment area compatible with the stored  
14 liquid shall be provided. The method of spill control, drainage control and secondary  
15 containment shall be in accordance with the *International Fire Code*.

16 **Exception:** Rooms where only double-wall storage tanks conforming to Section 415.6.2.3 are  
17 used to store Class I, II and IIIA flammable and combustible liquids shall not be required to have  
18 a leakage containment area.

19 **[F] 415.6.2.6 Leakage alarm.** An *approved* automatic alarm shall be provided to indicate a leak  
20 in a storage tank and room. The alarm shall sound an audible signal, 15 dBa above the ambient  
21 sound level, at every point of entry into the room in which the leaking storage tank is located. An  
22

1 *approved* sign shall be posted on every entry door to the tank storage room indicating the  
2 potential hazard of the interior room environment, or the sign shall state: WARNING, WHEN  
3 ALARM SOUNDS, THE ENVIRONMENT WITHIN THE ROOM MAY BE HAZARDOUS.

4 The leakage alarm shall also be supervised in accordance with Chapter 9 to transmit a trouble  
5 signal.

6  
7 **[F] 415.6.2.7 Tank vent.** Storage tank vents for Class I, II or IIIA liquids shall terminate to the  
8 outdoor air in accordance with the *International Fire Code*.

9 **[F] 415.6.2.8 Room ventilation.** Storage tank areas storing Class I, II or IIIA liquids shall be  
10 provided with mechanical ventilation. The mechanical ventilation system shall be in accordance  
11 with the *International Mechanical Code* and the *International Fire Code*.

12  
13 **[F] 415.6.2.9 Explosion venting.** Where Class I liquids are being stored, explosion venting shall  
14 be provided in accordance with the *International Fire Code*.

15 **[F] 415.6.2.10 Tank openings other than vents.** Tank openings other than vents from tanks  
16 inside buildings shall be designed to ensure that liquids or vapor concentrations are not released  
17 inside the building.

18  
19 **[F] 415.6.3 Liquefied petroleum gas facilities.** The construction and installation of liquefied  
20 petroleum gas facilities shall be in accordance with the requirements of this code, the  
21 *International Fire Code*, the *International Mechanical Code*, the *International Fuel Gas Code*  
22 and NFPA 58.

23  
24 **[F] 415.6.4 Dry cleaning plants.** The construction and installation of dry cleaning plants shall be  
25 in accordance with the requirements of this code, the *International Mechanical Code*, the  
26

((~~International~~)) Uniform Plumbing Code and NFPA32. Dry cleaning solvents and systems shall be classified in accordance with the *International Fire Code*.

\*\*\*

**[F] 415.8 Group H-5.**

**[F] 415.8.1 General.** In addition to the requirements set forth elsewhere in this code, Group H-5 shall comply with the provisions of Sections 415.8.1 through 415.8.11 and the *International Fire Code*.

**[F] 415.8.2 Fabrication areas.**

**[F] 415.8.2.1 Hazardous materials in fabrication areas.**

**[F] 415.8.2.1.1 Aggregate quantities.** The aggregate quantities of hazardous materials stored and used in a single fabrication area shall not exceed the quantities set forth in Table 415.8.2.1.1.

**Exception:** The quantity limitations for any hazard category in Table 415.8.2.1.1 shall not apply where the fabrication area contains quantities of hazardous materials not exceeding the maximum allowable quantities per *control area* established by Tables 307.1(1) and 307.1(2).

**[F] 415.8.2.1.2 Hazardous production materials.** The maximum quantities of hazardous production materials (HPM) stored in a single fabrication area shall not exceed the maximum allowable quantities per *control area* established by Tables 307.1(1) and 307.1(2).

**[F] 415.8.2.2 Separation.** Fabrication areas, whose sizes are limited by the quantity of hazardous materials allowed by Table 415.8.2.1.1, shall be separated from each other, from *corridors* and from other parts of the building by not less than 1-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both.

**Exceptions:**

1. Doors within such *fire barrier* walls, including doors to *corridors*, shall be only self-closing *fire door assemblies* having a *fire protection rating* of not less than 3/4 hour.

2. Windows between fabrication areas and corridors are permitted to be fixed glazing *listed* and labeled for a *fire protection rating* of at least 3/4 hour in accordance with Section 715.

**[F] 415.8.2.3 Location of occupied levels.** Occupied levels of fabrication areas shall be located at or above the first *story above grade plane*.

**[F] 415.8.2.4 Floors.** Except for surfacing, floors within fabrication areas shall be of noncombustible construction.

Openings through floors of fabrication areas are permitted to be unprotected where the interconnected levels are used solely for mechanical equipment directly related to such fabrication areas (see also Section 415.8.2.5).

Floors forming a part of an occupancy separation shall be liquid tight.

**[F] 415.8.2.5 Shafts and openings through floors.** Elevator shafts, vent shafts and other openings through floors shall be enclosed when required by Section 708. Mechanical, duct and piping penetrations within a fabrication area shall not extend through more than two floors. The *annular space* around penetrations for cables, cable trays, tubing, piping, conduit or ducts shall be sealed at the floor level to restrict the movement of air. The fabrication area, including the areas through which the ductwork and piping extend, shall be considered a single conditioned environment.

1 **[F] 415.8.2.6 Ventilation.** Mechanical exhaust ventilation at the rate of not less than 1 cubic foot  
2 per minute per square foot [0.0051m<sup>3</sup>/(s · m<sup>2</sup>)] of floor area shall be provided throughout the  
3 portions of the fabrication area where HPM are used or stored. The exhaust air duct system of  
4 one fabrication area shall not connect to another duct system outside that fabrication area within  
5 the building.

6  
7 A ventilation system shall be provided to capture and exhaust gases, fumes and vapors at  
8 workstations.

9 Two or more operations at a workstation shall not be connected to the same exhaust system  
10 where either one or the combination of the substances removed could constitute a fire, explosion  
11 or hazardous chemical reaction within the exhaust duct system.

12  
13 Exhaust ducts penetrating occupancy separations shall be contained in a shaft of equivalent  
14 fire-resistance-rated construction. Exhaust ducts shall not penetrate *fire walls*.

15 *Fire dampers* shall not be installed in exhaust ducts.

16 **[F] 415.8.2.7 Transporting hazardous production materials to fabrication areas.** HPM shall  
17 be transported to fabrication areas through enclosed piping or tubing systems that comply with  
18 Section 415.8.6.1, through service *corridors* complying with Section 415.8.4, or in *corridors* as  
19 permitted in the exception to Section 415.8.3. The handling or transporting of HPM within  
20 service *corridors* shall comply with the *International Fire Code*.

21  
22 **[F] 415.8.2.8 Electrical.**

23  
24 **[F] 415.8.2.8.1 General.** Electrical equipment and devices within the fabrication area shall  
25 comply with ((~~NFPA 70~~)) the Seattle Electrical Code. The requirements for hazardous locations  
26

1 need not be applied where the average air change is at least four times that set forth in Section  
2 415.8.2.6 and where the number of air changes at any location is not less than three times that  
3 required by Section 415.8.2.6. The use of recirculated air shall be permitted.

4 **[F] 415.8.2.8.2 Workstations.** Workstations shall not be energized without adequate exhaust  
5 ventilation. See Section 415.8.2.6 for workstation exhaust ventilation requirements.

6 **[F] 415.8.3 Corridors.** *Corridors* shall comply with Chapter 10 and shall be separated from  
7 fabrication areas as specified in Section 415.8.2.2. *Corridors* shall not contain HPM and shall not  
8 be used for transporting such materials, except through closed piping systems as provided in  
9 Section 415.8.6.3.

10 **Exception:** Where existing fabrication areas are altered or modified, HPM is allowed to be  
11 transported in existing *corridors*, subject to the following conditions:

12 1. Corridors. *Corridors* adjacent to the fabrication area where the *alteration* work is to be done  
13 shall comply with Section 1018 for a length determined as follows:

14 1.1. The length of the common wall of the *corridor* and the fabrication area; and

15 1.2. For the distance along the *corridor* to the point of entry of HPM into the *corridor* serving  
16 that fabrication area.

17 2. Emergency alarm system. There shall be an emergency telephone system, a local manual alarm  
18 station or other *approved* alarm-initiating device within *corridors* at not more than 150-foot (45  
19 720 mm) intervals and at each *exit* and doorway. The signal shall be relayed to an *approved*  
20 central, proprietary or remote station service or the emergency control station and shall also  
21 initiate a local audible alarm.

3. Pass-throughs. Self-closing doors having a *fire protection rating* of not less than 1 hour shall separate pass-throughs from existing *corridors*. Pass-throughs shall be constructed as required for the *corridors* and protected by an *approved* automatic fire-extinguishing system.

**[F] 415.8.4 Service corridors.**

**[F] 415.8.4.1 Occupancy.** Service corridors shall be classified as Group H-5.

**[F] 415.8.4.2 Use conditions.** Service corridors shall be separated from *corridors* as required by Section 415.8.2.2. Service corridors shall not be used as a required *corridor*.

**[F] 415.8.4.3 Mechanical ventilation.** Service corridors shall be mechanically ventilated as required by Section

415.8.2.6 or at not less than six air changes per hour, whichever is greater.

**[F] 415.8.4.4 Means of egress.** The maximum distance of travel from any point in a service corridor to an *exit*, *exit access corridor* or door into a fabrication area shall not exceed 75 feet (22860 mm). Dead ends shall not exceed 4 feet (1219 mm) in length. There shall be not less than two *exits*, and not more than one-half of the required *means of egress* shall require travel into a fabrication area. Doors from service corridors shall swing in the direction of egress travel and shall be self-closing.

**[F] 415.8.4.5 Minimum width.** The minimum clear width of a service corridor shall be 5 feet (1524 mm), or 33 inches (838 mm) wider than the widest cart or truck used in the corridor, whichever is greater.



1 [F] **415.8.4.6 Emergency alarm system.** Emergency alarm systems shall be provided in  
2 accordance with this section and Sections 414.7.1 and 414.7.2. The maximum allowable quantity  
3 per *control area* provisions shall not apply to emergency alarm systems required for HPM.

4 [F] **415.8.4.6.1 Service corridors.** An emergency alarm system shall be provided in service  
5 corridors, with at least one alarm device in each service corridor.

6 [F] **415.8.4.6.2 Exit access corridors and exit enclosures.** Emergency alarms for *exit access*  
7 *corridors* and *exit enclosures* shall comply with Section 414.7.2.

8 [F] **415.8.4.6.3 Liquid storage rooms, HPM rooms and gas rooms.** Emergency alarms for  
9 liquid storage rooms, HPM rooms and gas rooms shall comply with Section 414.7.1.

10 [F] **415.8.4.6.4 Alarm-initiating devices.** An *approved* emergency telephone system, local alarm  
11 manual pull stations, or other *approved* alarm-initiating devices are allowed to be used as  
12 emergency alarm-initiating devices.

13 [F] **415.8.4.6.5 Alarm signals.** Activation of the emergency alarm system shall sound a local  
14 alarm and transmit a signal to the emergency control station.

15 [F] **415.8.5 Storage of hazardous production materials.**

16 [F] **415.8.5.1 General.** Storage of HPM in fabrication areas shall be within *approved* or *listed*  
17 storage cabinets or gas cabinets or within a workstation. The storage of HPM in quantities greater  
18 than those listed in Section 1804.2 of the *International Fire Code* shall be in liquid storage  
19 rooms, HPM rooms or gas rooms as appropriate for the materials stored. The storage of other  
20 hazardous materials shall be in accordance with other applicable provisions of this code and the  
21 *International Fire Code*.

**[F] 415.8.5.2 Construction.**

**[F] 415.8.5.2.1 HPM rooms and gas rooms.** HPM rooms and gas rooms shall be separated from other areas by *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both. The minimum *fire-resistance rating* shall be 2 hours where the area is 300 square feet (27.9 m<sup>2</sup>) or more and 1 hour where the area is less than 300 square feet (27.9 m<sup>2</sup>).

**[F] 415.8.5.2.2 Liquid storage rooms.** Liquid storage rooms shall be constructed in accordance with the following requirements:

1. Rooms in excess of 500 square feet (46.5 m<sup>2</sup>) shall have at least one exterior door *approved* for fire department access.

2. Rooms shall be separated from other areas by *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both. The *fire-resistance rating* shall be not less than 1 hour for rooms up to 150 square feet (13.9m<sup>2</sup>) in area and not less than 2 hours where the room is more than 150 square feet (13.9 m<sup>2</sup>) in area.

3. Shelving, racks and wainscotting in such areas shall be of noncombustible construction or wood of not less than 1-inch (25 mm) nominal thickness.

4. Rooms used for the storage of Class I flammable liquids shall not be located in a basement.

**[F] 415.8.5.2.3 Floors.** Except for surfacing, floors of HPM rooms and liquid storage rooms shall be of noncombustible liquid-tight construction. Raised grating over floors shall be of noncombustible materials.

1 **[F] 415.8.5.3 Location.** Where HPM rooms, liquid storage rooms and gas rooms are provided,  
2 they shall have at least one *exterior wall* and such wall shall be not less than 30 feet (9144 mm)  
3 from *lot lines*, including *lot lines* adjacent to *public ways*.

4 **[F] 415.8.5.4 Explosion control.** Explosion control shall be provided where required by Section  
5 414.5.1.

6 **[F] 415.8.5.5 Exits.** Where two exits are required from HPM rooms, liquid storage rooms and  
7 gas rooms, one shall be directly to the outside of the building.

8 **[F] 415.8.5.6 Doors.** Doors in a *fire barrier* wall, including doors to *corridors*, shall be self-  
9 closing *fire door assemblies* having a *fire-protection rating* of not less than 3/4 hour.

10 **[F] 415.8.5.7 Ventilation.** Mechanical exhaust ventilation shall be provided in liquid storage  
11 rooms, HPM rooms and gas rooms at the rate of not less than 1 cubic foot per minute per square  
12 foot (0.044 L/s/m<sup>2</sup>) of floor area or six air changes per hour, whichever is greater, for categories  
13 of material.

14 Exhaust ventilation for gas rooms shall be designed to operate at a negative pressure in  
15 relation to the surrounding areas and direct the exhaust ventilation to an exhaust system.

16 **[F] 415.8.5.8 Emergency alarm system.** An *approved* emergency alarm system shall be  
17 provided for HPM rooms, liquid storage rooms and gas rooms.

18 Emergency alarm-initiating devices shall be installed outside of each interior exit door of  
19 such rooms.

20 Activation of an emergency alarm-initiating device shall sound a local alarm and transmit a  
21 signal to the emergency control station.

1 An *approved* emergency telephone system, local alarm manual pull stations or other  
2 *approved* alarm-initiating devices are allowed to be used as emergency alarm-initiating devices.

3 **[F] 415.8.6 Piping and tubing.**

4 **[F] 415.8.6.1 General.** Hazardous production materials piping and tubing shall comply with this  
5 section and ASME B31.3.

6 **[F] 415.8.6.2 Supply piping and tubing.**

7 **[F] 415.8.6.2.1 HPM having a health-hazard ranking of 3 or 4.** Systems supplying HPM  
8 liquids or gases having a health-hazard ranking of 3 or 4 shall be welded throughout, except for  
9 connections, to the systems that are within a ventilated enclosure if the material is a gas, or an  
10 *approved* method of drainage or containment is provided for the connections if the material is a  
11 liquid.  
12

13 **[F] 415.8.6.2.2 Location in service corridors.** Hazardous production materials supply piping or  
14 tubing in service corridors shall be exposed to view.  
15

16 **[F] 415.8.6.2.3 Excess flow control.** Where HPM gases or liquids are carried in pressurized  
17 piping above 15 pounds per square inch gauge (psig) (103.4 kPa), excess flow control shall be  
18 provided. Where the piping originates from within a liquid storage room, HPM room or gas  
19 room, the excess flow control shall be located within the liquid storage room, HPM room or gas  
20 room. Where the piping originates from a bulk source, the excess flow control shall be located as  
21 close to the bulk source as practical.  
22

23 **[F] 415.8.6.3 Installations in corridors and above other occupancies.** The installation of HPM  
24 piping and tubing within the space defined by the walls of *corridors* and the floor or roof above,  
25  
26

1 or in concealed spaces above other occupancies, shall be in accordance with Section 415.8.6.2

2 and the following conditions:

3 1. Automatic sprinklers shall be installed within the space unless the space is less than 6 inches  
4 (152 mm) in the least dimension.

5 2. Ventilation not less than six air changes per hour shall be provided. The space shall not be  
6 used to convey air from any other area.

7 3. Where the piping or tubing is used to transport HPM liquids, a receptor shall be installed  
8 below such piping or tubing. The receptor shall be designed to collect any discharge or leakage  
9 and drain it to an *approved* location. The 1-hour enclosure shall not be used as part of the  
10 receptor.  
11

12 4. HPM supply piping and tubing and nonmetallic waste lines shall be separated from the  
13 *corridor* and from occupancies other than Group H-5 by *fire barriers* that have a *fire-resistance*  
14 *rating* of not less than 1 hour. Where gypsum wallboard is used, joints on the piping side of the  
15 enclosure are not required to be taped, provided the joints occur over framing members. Access  
16 openings into the enclosure shall be protected by *approved* fire protection-rated assemblies.  
17

18 5. Readily accessible manual or automatic remotely activated fail-safe emergency shutoff valves  
19 shall be installed on piping and tubing other than waste lines at the following locations:  
20

21 5.1. At branch connections into the fabrication area.

22 5.2. At entries into *corridors*.  
23

24 **Exception:** Transverse crossings of the *corridors* by supply piping that is enclosed within a  
25 ferrous pipe or tube for  
26

the width of the *corridor* need not comply with Items 1 through 5.

**[F] 415.8.6.4 Identification.** Piping, tubing and HPM waste lines shall be identified in accordance with ANSI A13.1 to indicate the material being transported.

**[F] 415.8.7 Continuous gas detection systems.** A continuous gas detection system shall be provided for HPM gases when the physiological warning threshold level of the gas is at a higher level than the accepted PEL for the gas and for flammable gases in accordance with Sections 415.8.7.1 and 415.8.7.2.

**[F] 415.8.7.1 Where required.** A continuous gas detection system shall be provided in the areas identified in Sections 415.8.7.1.1 through 415.8.7.1.4.

**[F] 415.8.7.1.1 Fabrication areas.** A continuous gas detection system shall be provided in fabrication areas when gas is used in the fabrication area.

**[F] 415.8.7.1.2 HPM rooms.** A continuous gas detection system shall be provided in HPM rooms when gas is used in the room.

**[F] 415.8.7.1.3 Gas cabinets, exhausted enclosures and gas rooms.** A continuous gas detection system shall be provided in gas cabinets and exhausted enclosures. A continuous gas detection system shall be provided in gas rooms when gases are not located in gas cabinets or exhausted enclosures.

**[F] 415.8.7.1.4 Corridors.** When gases are transported in piping placed within the space defined by the walls of a *corridor* and the floor or roof above the *corridor*, a continuous gas detection system shall be provided where piping is located and in the *corridor*.

**Exception:** A continuous gas detection system is not required for occasional transverse crossings of the corridors by supply piping that is enclosed in a ferrous pipe or tube for the width of the corridor.

**[F] 415.8.7.2 Gas detection system operation.** The continuous gas detection system shall be capable of monitoring the room, area or equipment in which the gas is located at or below all the following gas concentrations:

1. Immediately dangerous to life and health (IDLH) values when the monitoring point is within an exhausted enclosure, ventilated enclosure or gas cabinet.
2. Permissible exposure limit (PEL) levels when the monitoring point is in an area outside an exhausted enclosure, ventilated enclosure or gas cabinet.
3. For flammable gases, the monitoring detection threshold level shall be vapor concentrations in excess of 25 percent of the lower flammable limit (LFL) when the monitoring is within or outside an exhausted enclosure, ventilated enclosure or gas cabinet.
4. Except as noted in this section, monitoring for *highly toxic* and *toxic* gases shall also comply with Chapter 37 of the *International Fire Code*.

**[F] 415.8.7.2.1 Alarms.** The gas detection system shall initiate a local alarm and transmit a signal to the emergency control station when a short-term hazard condition is detected. The alarm shall be both visual and audible and shall provide warning both inside and outside the area where the gas is detected. The audible alarm shall be distinct from all other alarms.

**[F] 415.8.7.2.2 Shutoff of gas supply.** The gas detection system shall automatically close the shutoff valve at the source on gas supply piping and tubing related to the system being monitored

for which gas is detected when a short-term hazard condition is detected. Automatic closure of shutoff valves shall comply with the following:

1. Where the gas detection sampling point initiating the gas detection system alarm is within a gas cabinet or exhausted enclosure, the shutoff valve in the gas cabinet or exhausted enclosure for the specific gas detected shall automatically close.

2. Where the gas detection sampling point initiating the gas detection system alarm is within a room and compressed gas containers are not in gas cabinets or an exhausted enclosure, the shutoff valves on all gas lines for the specific gas detected shall automatically close.

3. Where the gas detection sampling point initiating the gas detection system alarm is within a piping distribution manifold enclosure, the shutoff valve supplying the manifold for the compressed gas container of the specific gas detected shall automatically close.

**Exception:** Where the gas detection sampling point initiating the gas detection system alarm is at the use location or within a gas valve enclosure of a branch line downstream of a piping distribution manifold, the shutoff valve for the branch line located in the piping distribution manifold enclosure shall automatically close.

**[F] 415.8.8 Manual fire alarm system.** An *approved* manual fire alarm system shall be provided throughout buildings containing Group H-5. Activation of the alarm system shall initiate a local alarm and transmit a signal to the emergency control station. The fire alarm system shall be designed and installed in accordance with Section 907.

**[F] 415.8.9 Emergency control station.** An emergency control station shall be provided in accordance with Sections 415.8.9.1 through 415.8.9.3.



1 [F] **415.8.9.1 Location.** The emergency control station shall be located on the premises at an  
2 *approved* location outside the fabrication area.

3 [F] **415.8.9.2 Staffing.** Trained personnel shall continuously staff the emergency control station.

4 [F] **415.8.9.3 Signals.** The emergency control station shall receive signals from emergency  
5 equipment and alarm and detection systems. Such emergency equipment and alarm and detection  
6 systems shall include, but not be limited to, the following where such equipment or systems are  
7 required to be provided either in this chapter or elsewhere in this code:

- 9 1. *Automatic sprinkler system* alarm and monitoring systems.
- 10 2. Manual fire alarm systems.
- 11 3. Emergency alarm systems.
- 12 4. Continuous gas detection systems.
- 13 5. Smoke detection systems.
- 14 6. Emergency power system.
- 15 7. Automatic detection and alarm systems for pyrophoric liquids and Class 3 water-reactive  
16 liquids required in Section 1805.2.3.4 of the *International Fire Code*.
- 17 8. Exhaust ventilation flow alarm devices for pyrophoric liquids and Class 3 water-reactive  
18 liquids cabinet exhaust ventilation systems required in Section 1805.2.3.4 of the *International*  
19 *Fire Code*.

20 [F] **415.8.10 Emergency power system.** An emergency power system shall be provided in  
21 Group H-5 occupancies where required in Section 415.8.10.1. The emergency power system  
22  
23  
24  
25  
26  
27  
28

shall be designed to supply power automatically to required electrical systems when the normal electrical supply system is interrupted.

**[F] 415.8.10.1 Required electrical systems.** (~~Emergency~~) An emergency power system shall be provided for electrically operated equipment and connected control circuits for the following systems:

1. HPM exhaust ventilation systems.
2. HPM gas cabinet ventilation systems.
3. HPM exhausted enclosure ventilation systems.
4. HPM gas room ventilation systems.
5. HPM gas detection systems.
6. Emergency alarm systems.
7. Manual fire alarm systems.
8. *Automatic sprinkler system* monitoring and alarm systems.
9. Automatic alarm and detection systems for pyrophoric liquids and Class 3 water-reactive liquids required in Section 1805.2.3.4 of the *International Fire Code*.
10. Flow alarm switches for pyrophoric liquids and Class 3 water-reactive liquids cabinet exhaust ventilation systems required in Section 1805.2.3.4 of the *International Fire Code*.
11. Electrically operated systems required elsewhere in this code or in the *International Fire Code* applicable to the use, storage or handling of HPM.

1 **[F] 415.8.10.2 Exhaust ventilation systems.** Exhaust ventilation systems are allowed to be  
2 designed to operate at not less than one-half the normal fan speed on the emergency power  
3 system where it is demonstrated that the level of exhaust will maintain a safe atmosphere.

4 **[F] 415.8.11 Automatic sprinkler system protection in exhaust ducts for HPM.**

5 **[F] 415.8.11.1 Exhaust ducts for HPM.** An *approved automatic sprinkler system* shall be  
6 provided in exhaust ducts conveying gases, vapors, fumes, mists or dusts generated from HPM in  
7 accordance with this section and the *International Mechanical Code*.

8 **[F] 415.8.11.2 Metallic and noncombustible nonmetallic exhaust ducts.** An *approved*  
9 *automatic sprinkler system* shall be provided in metallic and noncombustible nonmetallic  
10 exhaust ducts when all of the following conditions apply:  
11

- 12 1. Where the largest cross-sectional diameter is equal to or greater than 10 inches (254 mm).
- 13 2. The ducts are within the building.
- 14 3. The ducts are conveying flammable gases, vapors or fumes.

15 **[F] 415.8.11.3 Combustible nonmetallic exhaust ducts.** *Automatic sprinkler system* protection  
16 shall be provided in combustible nonmetallic exhaust ducts where the largest cross-sectional  
17 diameter of the duct is equal to or greater than 10 inches (254 mm).  
18

19 **Exceptions:**

- 20 1. Ducts *listed* or *approved* for applications without automatic fire sprinkler system protection.
  - 21 2. Ducts not more than 12 feet (3658 mm) in length installed below ceiling level.
- 22  
23  
24  
25  
26  
27  
28

[F] **415.8.11.4 Automatic sprinkler locations.** Sprinkler systems shall be installed at 12-foot (3658 mm) intervals in horizontal ducts and at changes in direction. In vertical ducts, sprinklers shall be installed at the top and at alternate floor levels.

## SECTION 416

### APPLICATION OF FLAMMABLE FINISHES

[F] **416.1 General.** The provisions of this section shall apply to the construction, installation and use of buildings and structures, or parts thereof, for the spraying of flammable paints, varnishes and lacquers or other flammable materials or mixtures or compounds used for painting, varnishing, staining or similar purposes. Such construction and equipment shall comply with the *International Fire Code*.

[F] **416.1.1 Definitions.** The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

**FLAMMABLE VAPOR AREA.** An area in which the concentration of flammable constituents (vapor, gas, fume, mist or dust) in air exceeds 25 percent of their lower flammable limit (LFL) because of the flammable finish processes operation. It includes:

1. The interior of spray booths.
2. The interior of ducts exhausting from spraying processes.
3. Any area in the direct path of spray or any area containing dangerous quantities of air-suspended powder, combustible residue, dust, deposits, vapor or mists as a result of spraying operations.

4. The area in the vicinity of dip tanks, drain boards or associated drying, conveying or other equipment during operation or shutdown periods.

The building official is authorized to determine the extent of the flammable vapor area, taking into consideration the material characteristics of the flammable materials, the degree of sustained ventilation and the nature of the operations.

**LIMITED SPRAYING SPACE.** An area in which operations for touch-up or spot painting of a surface area of 9 square feet (0.84 m<sup>2</sup>) or less are conducted.

**SPRAY BOOTH.** A mechanically ventilated appliance of varying dimensions and construction provided to enclose or accommodate a spraying operation and to confine and limit the escape of spray vapor and residue and to exhaust it safely.

**SPRAY ROOM.** A room designed to accommodate spraying operations separated from the remainder of the building by a minimum 1-hour fire barrier.

**SPRAYING SPACE.** An area in which dangerous quantities of flammable vapors or combustible residues, dusts or deposits are present due to the operation of spraying processes.

The building official is authorized to define the limits of the spraying space in any specific case.

**[F] 416.2 Location of spray-finishing operations.** Spray-finishing operations conducted in buildings used for Group A, E, I or R occupancies shall be located in a spray room protected with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 and separated vertically and horizontally from other areas in accordance with this Section 416. In other occupancies, spray-finishing operations shall be conducted in a spray room, spray booth or spraying space approved for such use.

**Exceptions:**

1. Automobile undercoating spray operations and spray-on automotive lining operations conducted in areas with approved natural or mechanical ventilation are exempt from the provisions of this Section 416 when approved and where using Class IIIA or IIIB combustible liquids.

2. In buildings other than Group A, E, I or R occupancies, approved limited spraying space in accordance with International Fire Code Section 1504.9.

3. Resin application areas used for manufacturing of reinforced plastics complying with International Fire Code Section 1509 are not required to be located in a spray room, spray booth or spraying space.

Spray-finishing operations shall be allowed in basements only when confined to either an approved spray booth or an approved spray room protected by an *approved* automatic fire sprinkler system and when such basement is protected throughout by an *approved* automatic sprinkler system in accordance with Chapter 9.

**[F] 416.3 Spray rooms.** Spray rooms shall comply with the *International Fire Code* and Sections 416.3.1 through 416.3.3.

**[F] 416.3.1 Fire-resistance rating.** Spray rooms shall be enclosed with not less than 1-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both.

**[F] 416.3.2 Floors.** Floors of spray rooms shall be waterproofed and drained in an *approved* manner. Combustible floor construction in spray rooms shall be covered by approved.

1 noncombustible, nonsparking material, except where combustible coverings, including but not  
2 limited to thin paper or plastic and strippable coatings, are used over noncombustible materials to  
3 facilitate cleaning operations in spray rooms.

4 **[F] ((416.2.1)) 416.3.3 Surfaces.** The interior surfaces of spray rooms shall be smooth and shall  
5 be so constructed to permit the free passage of exhaust air from all parts of the interior and to  
6 facilitate washing and cleaning, and shall be so designed to confine residues within the room.  
7 Aluminum shall not be used.

8 **[F] 416.4 Spray booths.** The design and construction of spray booths shall comply with the  
9 International Fire Code, and Sections 416.4.1 through 416.4.6, Sections 416.6 through 416.11  
10 and NFPA 33.

11 **[F] 416.4.1 Construction.** Spray booths shall be constructed of approved noncombustible  
12 materials. Aluminum shall not be used. Where walls or ceiling assemblies are constructed of  
13 sheet metal, single-skin assemblies shall be no thinner than 0.0478 inch (18 gage) (1.2 mm) and  
14 each sheet of double-skin assemblies shall be no thinner than 0.0359 inch (20 gage) (0.9 mm).  
15 Structural sections of spray booths are allowed to be sealed with latex-based or similar caulks  
16 and sealants.

17 **[F] 416.4.2 Surfaces.** The interior surfaces of spray booths shall be smooth; shall be constructed  
18 so as to permit the free passage of exhaust air from all parts of the interior, and to facilitate  
19 washing and cleaning; and shall be designed to confine residues within the booth. Aluminum  
20 shall not be used.

**[F] 416.4.3 Floor.** Combustible floor construction in spray booths shall be covered by approved, noncombustible, nonsparking material, except where combustible coverings, including but not limited to thin paper or plastic and strippable coatings, are used over noncombustible materials to facilitate cleaning operations in spray booths.

**[F] 416.4.4 Means of egress.** Means of egress shall be provided in accordance with Chapter 10.

**Exception:** Means of egress doors from premanufactured spray booths shall not be less than 30 inches (762 mm) in width by 80 inches (2032 mm) in height.

**[F] 416.4.5 Clear space.** Spray booths shall be installed so that all parts of the booth are readily accessible for cleaning. A clear space of not less than 3 feet (914 mm) shall be maintained on all sides of the spray booth. This clear space shall be kept free of any storage or combustible construction.

**Exceptions:**

1. This requirement shall not prohibit locating a spray booth closer than 3 feet (914 mm) to or directly against an interior partition, wall or floor/ceiling assembly that has a fire-resistance rating of not less than one hour, provided the spray booth can be adequately maintained and cleaned.

2. This requirement shall not prohibit locating a spray booth closer than 3 feet (914 mm) to an exterior wall or a roof assembly, provided the wall or roof is constructed of noncombustible material and the spray booth can be adequately maintained and cleaned.

**[F] 416.4.6 Size.** The aggregate area of spray booths in a building shall not exceed the lesser of 10 percent of the area of any floor of a building or the basic area allowed for a Group H-2



occupancy without area increases. The area of an individual spray booth in a building shall not exceed the lesser of the aggregate size limit or 1,500 square feet (139 m<sup>2</sup>).

**Exception:** One individual booth not exceeding 500 square feet (46 m<sup>2</sup>).

**[F] 416.5 Spraying spaces.** Spraying spaces shall be designed and constructed in accordance with the *International Fire Code*, and Sections 416.5.1 through 416.10.

**[F] ((416.3 Spraying spaces)) 416.5.1 Ventilation.** Spraying spaces shall be ventilated with an exhaust system to prevent the accumulation of flammable mist or vapors in accordance with the *International Mechanical Code*. ((Where such spaces are not separately enclosed, noncombustible spray curtains shall be provided to restrict the spread of flammable vapors.))

**[F] 416.5.2 Floor.** Combustible floor construction in spraying spaces shall be covered by approved, noncombustible nonsparking material, except where combustible coverings, such as thin paper or plastic and strippable coatings, are used over noncombustible materials to facilitate cleaning operations in spraying spaces.

**[F] ((416.3.1)) 416.5.3 Surfaces.** The interior surfaces of spraying spaces shall be smooth and continuous without edges; shall be so constructed to permit the free passage of exhaust air from all parts of the interior and to facilitate washing and cleaning; and shall be so designed to confine residues within the spraying space. Aluminum shall not be used.

~~(([F] 416.4 Spray booths. Spray booths shall be designed, constructed and operated in accordance with the *International Fire Code*.)~~

**[F] ((416.5)) 416.6 Fire protection.** An automatic fire-extinguishing system shall be provided in all spray, dip and immersing spaces and storage rooms and shall be installed in accordance with

Chapter 9. Spray booths and spray rooms shall be protected by an approved automatic fire-extinguishing system complying with Chapter 9. Protection shall also extend to exhaust plenums, exhaust ducts and both sides of dry filters when such filters are used.

**[F] 416.7 Illumination.** Where spraying spaces, spray rooms or spray booths are illuminated through glass panels or other transparent materials, only fixed luminaires shall be used as a source of illumination.

**[F] 416.7.1 Glass panels.** Panels for luminaires or for observation shall be of heat-treated glass, wired glass or hammered wire glass and shall be sealed to confine vapors, mists, residues, dusts and deposits to the flammable vapor area. Panels for luminaires shall be separated from the luminaire to prevent the surface temperature of the panel from exceeding 200°F (93°C).

**[F] 416.7.2 Exterior luminaires.** Luminaires attached to the walls or ceilings of a flammable vapor area, but outside of any classified area and separated from the flammable vapor areas by vapor-tight glass panels, shall be suitable for use in ordinary hazard locations. Such luminaires shall be serviced from outside the flammable vapor areas.

**[F] 416.7.3 Integral luminaires.** Luminaires that are an integral part of the walls or ceiling of a flammable vapor area are allowed to be separated from the flammable vapor area by glass panels that are an integral part of the luminaire. Such luminaires shall be listed for use in Class I, Division 2 or Class II, Division 2 locations, whichever is applicable, and also shall be suitable for accumulations of deposits of combustible residues. Such luminaires are allowed to be serviced from inside the flammable vapor area.

1 **[F] 416.8 Ventilation.** Mechanical ventilation of flammable vapor areas shall be provided in  
2 accordance with Section 502.7 of the *International Mechanical Code*.

3 **[F] 416.9 Waterwash spray booths.** Waterwash spray booths shall be of an approved design so  
4 as to prevent excessive accumulation of deposits in ducts and residue at duct outlets. Such booths  
5 shall be arranged so that air and overspray are drawn through a continuously flowing water  
6 curtain before entering an exhaust duct to the building exterior.

7  
8 **[F] 416.10 Interlocks.** Interlocks for spray application finishes shall be in accordance with  
9 Sections 416.10.1 through 416.10.2.

10 **[F] 416.10.1 Automated spray application operations.** Where protecting automated spray  
11 application operations, automatic fire-extinguishing systems shall be equipped with an approved  
12 interlock feature that will, upon discharge of the system, automatically stop the spraying  
13 operations and workpiece conveyors into and out of the flammable vapor areas. Where the  
14 building is equipped with a fire alarm system, discharge of the automatic fire-extinguishing  
15 system shall also activate the building alarm notification appliances.

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17  
18 **[F] 416.10.1.1 Alarm station.** A manual fire alarm and emergency system shutdown station  
19 shall be installed to serve each flammable vapor area. When activated, the station shall  
20 accomplish the functions indicated in Section 416.10.1.

21 **[F] 416.10.1.2 Alarm station location.** At least one manual fire alarm and emergency system  
22 shutdown station shall be readily accessible to operating personnel. Where access to this station  
23 is likely to involve exposure to danger, an additional station shall be located adjacent to an exit  
24 from the area.

**[F] 416.10.2 Ventilation interlock prohibited.** Air makeup and flammable vapor area exhaust systems shall not be interlocked with the fire alarm system and shall remain in operation during a fire alarm condition.

**Exception:** Where the type of fire-extinguishing system used requires such ventilation to be discontinued, air makeup and exhaust systems shall shut down and dampers shall close.

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## SECTION 419

### LIVE/WORK UNITS

**419.1 General.** A live/work unit (~~((is a dwelling unit or sleeping unit in which a significant portion of the space includes a nonresidential use that is operated by the tenant and))~~) shall either comply with Sections 419.1 through 419.8 or Section 508.

**Exception:** *Dwelling or sleeping units* that include an office that is less than 10 percent of the area of the *dwelling unit* shall not be classified as a live/work unit.

**419.1.1 Limitations.** The following shall apply to all live/work areas:

1. The live/work unit is permitted to be a maximum of 3,000 square feet (279 m<sup>2</sup>); and
2. The nonresidential area is permitted to be a maximum 50 percent of the area of each live/work unit((;)).
- ~~((3. The nonresidential area function shall be limited to the first or main floor only of the live/work unit; and~~
4. ~~A maximum of five nonresidential workers or employees are allowed to occupy the nonresidential area at any one time.))~~

**419.2 Occupancies.** Live/work units shall be classified as a Group R-2 or Group R-3 occupancy.

Separation requirements found in Section ~~((s-420 and))~~ 508 shall not apply within the live/work unit when the live/work unit is in compliance with Sections 419 and 420. High-hazard and storage occupancies shall not be permitted in a live/work unit. The aggregate area of storage in the nonresidential portion of the live/work unit shall be limited to 10 percent of the space dedicated to nonresidential activities.

\*\*\*

**419.5 Fire protection.** The live/work unit shall be provided with a monitored fire alarm system where required by Section 907.2.9. ~~((and an))~~ An automatic sprinkler system shall be provided in accordance with:

1. Section ~~((903.2.8))~~ 903.3.1.2 or 903.3.1.3 for Group R occupancies in buildings with four or fewer dwelling units that do not exceed two stories in height that are less than 5,000 square feet in area; or
2. Section 903.3.1.1 for all other buildings.

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**419.7 Accessibility.** Accessibility shall be designed in accordance with Chapter 11 requirements for Group M occupancies.

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## SECTION 420

### GROUPS I-1, R-1, R-2, R-3

**Note:** Seattle Electrical Code 625.27 requires that, in residential occupancies, a location be designated for future installation of a panelboard for electric vehicle charging systems with working clearances.

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**420.3 Horizontal separation.** Floor assemblies separating *dwelling units* in the same buildings, floor assemblies separating *sleeping units* in the same building and floor assemblies separating *dwelling* or *sleeping units* from other occupancies contiguous to them in the same building shall be constructed as *horizontal assemblies* in accordance with Section 712.

**Interpretation I420:** Separation provisions of Section 508 apply in addition to the separation requirements of Section 420.

**420.4 Roof-ceiling soffits.** Roof-ceiling soffits in dwelling units and sleeping units shall be provided with a minimum of 1/2-inch gypsum wallboard in buildings of Types IIB, IIIB and VB construction.

**[W] 420.5 Subdivision of building spaces--smoke barriers.** Smoke barriers complying with Section 710 shall be installed on floors other than the level of exit discharge of a Group R-2 boarding home or residential treatment facility licensed by Washington state, where a fire-resistance rated corridor is required by Table 1018.1. The smoke barrier shall subdivide the floor into at least two compartments complying with Section 407.4.

**420.6 Security from criminal activity in Group R.**

**420.6.1 Group R occupancies other than one- and two-family dwellings.** All housing units except one- and two-family dwellings shall comply with Section 420.6.1.

**420.6.1.1 Definition.** For the purposes of this section, “housing unit” is any dwelling unit or guest room.

**420.6.1.2 Building entrance doors and locks.** Building entrance doors shall be without openings and shall be as capable of resisting forcible entry as a flush solid core wood door 1-3/8 inches thick.

**Exceptions:**

1. Building entrance doors are permitted to have visitor-observation ports that do not impair the fire resistance of the door.

2. Main entrance doors are permitted to be framed or unframed non-shattering glass, framed 1/4-inch plate glass or other security glazing.

3. Building entrance doors other than main entrance doors are permitted to have glazed openings. Glazed openings shall have wire, grilles or security glazing to prevent operation of the door latch from outside by hand or instrument.

Building entrance doors shall be self-closing, self-locking and equipped with a dead-locking latch bolt with at least a 1/2-inch throw that shall penetrate the striker at least 1/4 inch.

**Exceptions:**

1. Building entrance doors that open directly into a housing unit shall comply with Section 420.6.1.4.

2. Garage-to-building doors need not be self-locking when the garage-to-exterior door is equipped with an electrically-operated remote control device for opening and automatically closing.

1 3. When either the garage-to-exterior doors or garage-to-building doors are equipped for self-  
2 closing and self-locking, the other need not be so equipped.

3 **420.6.1.3 Locks.** All exit doors, including those from individual housing units, shall be openable  
4 from the interior without use of keys or special knowledge or effort.

5 **420.6.1.4 Housing unit doors and locks.** Doors from interior corridors to individual housing  
6 units shall not have glass openings and shall be as capable of resisting forcible entry as a flush  
7 solid core wood door 1-3/8 inches thick.

8 Every entrance door to a housing unit shall have a dead bolt or dead-locking latch bolt with at  
9 least a 1/2-inch throw that penetrates the striker not less than 1/4 inch. In hotels and other multi-  
10 unit buildings that provide housing for rent on a daily or weekly basis, every entrance door to a  
11 housing unit shall also be provided with a chain door guard or barrel bolt on the inside.

12 **420.6.1.5 Observation ports.** Every entrance door to a housing unit, other than transparent  
13 doors, shall have a visitor-observation port. The port shall not impair the fire resistance of the  
14 door. Observation ports shall be installed not less than 54 inches and not more than 66 inches  
15 above the floor.

16 **420.6.1.6 Non-exit doors.** Doors to storage, maintenance and building service rooms shall be  
17 self-closing and self-locking.

18 **420.6.1.7 Sliding doors.** Dead bolts or other approved locking devices shall be provided on all  
19 sliding doors. These locks shall be installed so that the mounting screws for the lock cases are  
20 inaccessible from the outside.

21 **420.6.1.8 Windows.** Openable windows shall have operable inside latching devices.  
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**Exception:** Windows with sills located 10 feet or more above grade, or 10 feet or more above a deck, balcony or porch that is not readily accessible from grade except through a housing unit need not have operable inside latching devices.

**420.6.2 One- and two-family dwellings.** One- and two-family dwellings shall comply with Section 420.6.2.

**420.6.2.1 Building entrance locks.** Building entrance doors, including garage doors, shall be capable of locking. They shall be equipped with a dead-locking latch bolt with at least a 1/2-inch throw that penetrates the striker not less than 1/4 inch. Building entrance doors shall be openable from the inside without use of a key or special knowledge or effort.

**Exception:** Garage-to-exterior doors are permitted to be equipped with an electronically-operated remote control device for opening and closing in lieu of a dead-locking latch bolt.

When garage-to-exterior doors are equipped with remote control devices, garage-to-building doors need not be capable of locking.

**420.6.2.2 Observation ports.** Every building entrance door, other than garage doors, shall have a visitor observation port or glass side light. Observation ports shall be installed at a height of not less than 54 inches and not more than 66 inches from the floor.

**420.6.2.3 Windows and sliding doors.** Dead bolts or other approved locking devices shall be provided on all sliding doors and openable windows. The lock shall be installed so that the mounting screws for the lock case are inaccessible from the outside.

**Exception:** Windows with sills located 10 feet or more above grade, or 10 feet or more above a deck, balcony or porch that is not readily accessible from grade except through a housing unit need not have operable inside latching devices.

**420.6.3 Alternate security devices.** Subject to the approval of the building official, alternate security devices are permitted to be substituted for those required by this Section 420.6.

Alternate devices shall have equal capability to resist illegal entry. The installation of the device must not conflict with other requirements of this code and other ordinances regulating the safety of exiting.

## SECTION 421

### HYDROGEN CUTOFF ROOMS

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**[F] 421.8 Legally required standby ((Standby)) power.** Mechanical ventilation and gas detection systems shall be connected to a legally required standby power system in accordance with Chapter 27.

## SECTION 422

### AMBULATORY HEALTH CARE FACILITIES

**[W] 422.1 General.** Occupancies classified as ((Group B)) *ambulatory health care facilities* shall comply with the provisions of Sections 422.1 through ((422.6)) 422.7 and other applicable provisions of this code by the services provided.

**[W] 422.2 ((Smoke barriers)) Separation.** Ambulatory health care facilities where four or more care recipients are rendered incapable of self-preservation at any given time shall be separated

from adjacent spaces, corridors or tenants with a fire partition installed in accordance with

Section 709.

**[W] 422.3 Smoke compartments.** ~~((Smoke barriers shall be provided to subdivide every ambulatory care facility greater than))~~ Where the aggregate area of one or more ambulatory health care facilities exceeds 10,000 square feet (929 m<sup>2</sup>) on one story, the story shall be provided with a smoke barrier to subdivide the story into not less than ((into a minimum of)) two smoke compartments ((per story)). Smoke barriers shall be installed in accordance with Section 710. The area of any one such smoke compartment shall not exceed 22,500 square feet (2092 m<sup>2</sup>). The travel distance from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). ~~((The smoke barrier shall be installed in accordance with Section 710.))~~

**Exception:** Where the ambulatory health care facility is completely surrounded by the required smoke barrier, such smoke barriers shall not be required to be continuous from an outside wall to outside wall.

~~[W] ((422.3))~~ **422.4 Refuge area.** At least ((30)) 15 net square feet ((2.8 m<sup>2</sup>)) (2.79 m<sup>2</sup>) per ((nonambulatory patient)) occupant shall be provided within the aggregate area of corridors, patient rooms, treatment rooms, lounge or dining areas and other low-hazard areas on each side of each smoke barrier. Each ambulatory health care facility shall be provided with access to the required refuge areas without passing through or utilizing adjacent tenant spaces.

[W] ((422.4)) **422.5 Independent egress.** *A means of egress shall be provided from each smoke compartment created by smoke barriers without having to return through the smoke compartment from which means of egress originated.*

[W] ((422.5)) **422.6 Automatic sprinkler systems.** *Automatic sprinkler systems shall be provided for ambulatory care facilities in accordance with Section 903.2.2.*

[W] ((422.6)) **422.7 Fire alarm systems.** *A fire alarm system shall be provided for ambulatory health care facilities in accordance with Section 907.2.2.1.*

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## **SECTION 424**

### **WATERFRONT STRUCTURES: PIERS, WHARVES AND BUILDINGS**

#### **424.1 General.**

**424.1.1 Scope.** Structures with at least 20 percent or 8,000 square feet (743 m<sup>2</sup>), whichever is greater, of their area over water shall comply with Section 424. They shall also comply with all other requirements of this code unless otherwise specified in Section 424. Unless otherwise specified, all wood dimensions are nominal size as defined in Section 2302.

#### **Exceptions:**

1. Fire-resistance-rated walls specified in Section 424.6.6 are permitted to be used as one-hour fire-resistance-rated fire barriers and as a separation between repair garages not classified as Group S-1 and occupancies in Group A, including the specified opening protection in buildings of Types IIB, IV and VB construction.
2. Structures accessory to Group R-3 occupancies.

3. Floating homes that comply with the Seattle Residential Code.

See Chapter 45 of the Fire Code for additional requirements for fire protection systems.

**424.1.2 Definitions.** For the purposes of this Section 424, certain terms are defined as follows:

**COVERED BOAT MOORAGE.** A pier or system of floating or fixed accessways to which vessels on water may be secured, which is covered by a roof.

**DOCK.** A natural open or artificially closed basin in which vessels may remain afloat when berthed at a wharf or pier.

**PIER.** A structure, usually of greater length than width, of timber, stone, concrete or other material, having a deck and projecting from the shore into waters so that vessels may be moored alongside for loading, unloading, storage, repairs or commercial uses.

**SUBSTRUCTURE.** The portion of the construction below and including the deck immediately above the water.

**SUPERSTRUCTURE.** The portion of construction above the deck.

**Exception:** Covered boat moorage.

**WHARF.** A structure or bulkhead constructed of wood, stone, concrete or similar material built along and parallel to waters for vessels to lie alongside of, and to anchor piers or floats.

**424.2 Allowable area and height for waterfront structures.** The height of structures to be built over water shall be measured as provided in Title 23 of the Seattle Municipal Code, Sections 23.60.952 and 23.60.930 for Shoreline Districts. Height and area shall comply with the requirements of Table 503, except that the increases allowed in Section 507.1 are not applicable to waterfront structures.

**Exceptions:**

1. In covered boat moorages, the areas in Table 503 are permitted to be increased not more than 400 percent when an approved automatic sprinkler system is provided throughout.

2. Each covered area of a boat moorage is permitted to be considered a separate building subject to the following conditions:

2.1. Maximum individual areas shall be 8,000 square feet (743 m<sup>2</sup>). The maximum width of connecting walkways shall be 10 feet (3048 mm).

2.2. Walkways, finger piers and other decked areas shall not exceed 30 percent of the area of the roof that extends over water.

2.3. Covered areas shall be separated by not less than 16 feet (4877 mm). The intervening areas are permitted to be used for moorage provided the adjacent covered areas comply with Item 2.4 below.

2.4. Covered roof areas constructed in a manner that would trap smoke or hot gases shall be provided with the following:

2.4.1 Vents or monitors of not less than 5 percent of the roof area.

2.4.2 A draft stop of splined or tongue-and-groove planking not less than 1 inch (25 mm) in thickness, 1/2-inch (13 mm) exterior-type plywood or 26 gauge steel shall extend across the end of each roof area when the roof is closer than 30 feet (9144 mm) to an adjacent building. The draft stop shall extend to not less than 24 inches (610 mm) below the lower edge of the roof. A draft stop constructed in accordance with Section 421.5 shall be

provided under the walkway at each location where draft stops are required at the end of  
roofed areas.

**424.3 Accessory uses.** Uses accessory to the principal occupancy shall be permitted, provided they are conducted in an area separated from the moorage area by not less than 16 feet (4877 mm) and the exposed side of the moorage area is protected by a one-hour fire-resistance-rated fire barrier extending 2-1/2 feet (762 mm) above the roof line. One-story superstructures shall be permitted for accessory uses but shall not exceed 1,000 square feet (93 m<sup>2</sup>) in area nor 20 feet (6096 mm) in height.

**Exception:** Storage is allowed in the moorage area, provided it conforms to the following:

1. One unprotected moorage equipment locker of not more than 150 cubic feet (115 m<sup>3</sup>) is permitted for each slip.
2. Where groups of three or more lockers are provided, they shall be separated from each other with one-hour fire-resistance-rated fire partitions, and openings in the separation shall have one-hour protection.
3. Storage of flammable liquids shall be in accordance with NFPA 31 and the Fire Code.

**424.4 Location on property.** Exterior walls shall have fire resistance and opening protection as determined by Section 705.

**Exceptions:**

1. Fire resistance-rated construction and opening protection required because of proximity to property lines are permitted to be omitted for waterfront structures that are located on the same property, separated by an unobstructed deck not less than 16 feet (4877 mm) wide, and have a

draft stop constructed according to Section 424.5.2 installed in the substructure between the buildings.

2. In covered boat moorages, exterior walls that are built entirely over water are permitted to be of tongue-and-groove or splined planks not less than 2 inches (51 mm) in thickness, covered with 26 gauge sheet metal, 3/8-inch (9.5 mm) exterior type plywood or equivalent on both sides, regardless of proximity to property lines. Walls at the substructure are permitted to be constructed as specified in Section 424.5.2 for draft stops. Where such walls (even though part of such covered boat moorage) are built on land, this exception shall not apply.

#### **424.5 Substructure.**

**424.5.1 Construction.** Substructures are permitted to be of any type of construction permitted in this code subject to the area limitations of Section 424.2, except that, when constructed of wood, the members shall not be less than the following in any dimension, exclusive of piling:

<b><u>Member</u></b>	<b><u>Size</u></b> <b><u>Unlimited Use</u></b> <b><u>× 25.4 for mm</u></b>	<b><u>Piers for Boat Moorage Only,</u></b> <b><u>Not Exceeding 10 feet (3048 mm)</u></b> <b><u>in Width</u></b> <b><u>× 25.4 for mm</u></b>
<u>Caps and girders</u>	<u>8"</u>	<u>6"</u>
<u>Joists, beams and other members</u>	<u>4"</u>	<u>3"</u>
<u>Flooring or deck</u>	<u>3" T &amp; G or splined or</u>	<u>2"</u>



	<u>4" square edged</u>	
<u>Bracing</u>	<u>3"</u>	<u>2"</u>

If the flooring or deck is under a roof or is used for parking, there shall be applied over the flooring or deck a tight-fitting wearing surface of softwood not less than 2 inches (51 mm) thick and not more than 6 inches (152 mm) wide, 1-inch (25 mm) thick hardwood, 2-inch (51 mm) thick asphaltic concrete or other material of equivalent fire resistance.

**Exception:** Covered piers used for moorage only need not have a wearing surface.

**424.5.2 Draft stops.** Draft stops shall be installed in all substructures constructed of combustible materials, exclusive of piling and pile bracing. They shall be placed not more than 100 feet (2540 mm) apart measured along the main axis of the pier or wharf. They shall fit tightly around all joists, beams, etc., and extend from the underside of the deck to city datum if over salt water or to low water if over fresh water. See Section 424.6.7 for draft stops in superstructures.

Substructure draft stops shall be constructed of at least two layers of lumber not less than 2 inches (51 mm) in thickness laid with broken joints or materials of equal fire resistance.

## **424.6 Superstructure.**

**424.6.1 Construction.** Superstructures are permitted to be of any type of construction permitted by this code subject to the height and area limitations of Section 424.2 and the requirements of this section.

**424.6.2 Floors.** See Section 424.5.

**424.6.3 Exterior walls.** Exterior walls of Types IIA, IIB, III, IV and V buildings, when not subject to the requirements of Section 424.4 because of their proximity to property lines, are permitted to be constructed of matched or lapped lumber not less than 2 inches (51 mm) thick and not more than 6 inches (153 mm) wide, or not less than 1 inch (25 mm) thick with a weather covering of noncombustible material applied directly to the wood. Fireblocking is required as specified in Section 717. Openings in exterior walls shall be protected by a fire assembly having a three-fourths-hour fire- protection rating when fire-resistive openings are required by Table 705.8 and 1027.

**424.6.4 Roof coverings.** Roof coverings shall be fire-retardant as specified in Chapter 15.

**424.6.5 Roof construction.** In Type IV buildings the roof is permitted to be constructed of corrugated galvanized steel attached directly to wood or steel purlins in lieu of that specified in Section 602.4.

**424.6.6 Fire-resistance-rated walls.** In Types IIA, IIB, III, IV and V buildings, there shall be at least one fire-resistance-rated wall from the deck to at least 3 feet (914 mm) above the roof for each 500 feet (152 m) of length. Areas greater than 100,000 square feet (9290 m<sup>2</sup>) shall be divided with such fire-resistance-rated walls. There shall be a draft stop constructed as specified in Section 424.5.2, installed in the substructure immediately below every required fire-resistance-rated wall when the deck is of combustible materials.

Fire-resistance-rated walls shall be constructed as required for two-hour fire-resistance-rated walls or are permitted to consist of at least two layers of tongue-and-groove or splined lumber, not less than 2 inches (51 mm) thick and not more than 6 inches (153 mm) wide, with a sheet of

not less than No. 26 gauge galvanized steel or 3/8-inch (3.2 mm) exterior type plywood between the two layers, placed vertically with broken joints, or equivalent fire-resistive construction.

Openings in fire-resistance-rated walls shall be protected by opening protectives having a one and one-half hour fire protection rating.

**424.6.7 Draft stops.** Superstructure draft stops shall be installed as specified in Section 717.

Substructure draft stops constructed as specified in Section 424.5.2 shall be installed in line with the superstructure draft stops above. See Section 424.11 for draft curtain requirements.

**424.6.8 Means of egress.** Means of egress shall be provided as specified in Chapter 10.

**Exceptions:**

1. Where two means of egress are required from an occupancy, they shall not terminate on the same open deck.

2. An open deck is permitted to be considered an exit court and shall not be less than 10 feet (3048 mm) in width.

3. In Group A occupancies, the maximum travel distance shall not be more than 75 percent of that specified in Section 1016.

4. Boat moorages that have no sales, service or repair facilities are permitted to have a single means of egress not less than 3 feet (914 mm) wide and shall be exempt from the requirements of Section 1016 if a Class I standpipe is provided as specified in Section 424.8.

**424.7 Width of piers.** Floats, piers and walkways shall provide an aisle not less than 3 feet 6 inches (1067 mm) in width for the purpose of fire department access.

**Exception:** Floats, piers and walkways that are less than 40 feet (12 192 mm) in length and that are not open to the public.

**424.8 Standpipe systems.** A manual Class I standpipe system (or Class III standpipe system when approved by the fire code official) in accordance with NFPA Standard 14 shall be provided for piers, wharves, and floats where the hose lay distance from the fire apparatus to the most remote accessible portion of the pier, wharf or float exceeds 150 feet (45,720 mm). Approved plastic pipe may be used when installed underwater, or other approved method of protection from fire is provided. The standpipe piping shall be a minimum of 4 inches (102 mm), sized to provide a minimum of 500 gpm at 130 psi at the most remote hose connection, with a simultaneous flow of 500 gpm at the third most remote hose connection on the same pier while maintaining a maximum system pressure of 175 psi. Existing standpipe systems providing equivalent performance to the specification listed above may be acceptable when approved by the fire code official.

**424.8.1 Hose connections.** Hose connection stations on required standpipes shall be provided at the water end of the pier, wharf, or float, and along the entire length of the pier, wharf, or float at spacing not to exceed 150 feet (45,720 mm) and as close as practical to the land end.

**Exception:** The hose connection at the land end of the pier, wharf or float may be omitted when a hose connection is located within 150 feet (45,720 mm) of the fire apparatus access road.

Each hose connection shall consist of a valved 2-1/2-inch (64 mm) fire department hose outlet. Outlet caps shall have a predrilled 1/8-inch (3.2 mm) hole for pressure relief and be secured with a short length of chain or cable to prevent falling after removal. Listed equipment shall be used.

**424.8.2 Hose stations.** Hose stations on required standpipes shall be provided at spacing not to exceed 100 feet, with the first hose station located as close as practicable to the land end of the pier. Each hose station shall have 100 feet of 1½-inch hose mounted on a reel or rack and enclosed within an approved cabinet. A valved 2½-inch fire department hose outlet shall be provided at each hose station. Outlet caps shall have a 1/8-inch predrilled hole for pressure relief and be secured with a short length of chain or cable to prevent falling after removal. Listed equipment shall be used. Hose stations shall be labeled **FIRE HOSE-EMERGENCY USE ONLY**.

**424.8.3 Freeze protection.** Standpipe systems shall be maintained dry when subject to freezing temperatures, and always from November 1 through March 31. The 1½-inch hose stations shall be tagged out-of service when the system is drained. The main water supply control valve shall be readily accessible and clearly labeled so that the system may be quickly restored to full service during periods when the system is drained down.

**Exception:** Other methods of freeze protection, such as listed freeze valves, are permitted to be provided when approved by the fire code official.

**424.9 Automatic sprinklers.**

**424.9.1 Covered boat moorage.** Automatic sprinklers shall be provided for covered boat moorage exceeding 500 square feet in projected roof area per pier, wharf or float.

The sprinkler system shall be designed and installed in accordance with NFPA 13 for Extra Hazard Group 2 occupancy.

If sprinklers are required by this section, they shall be extended to any structure on the pier, wharf or float exceeding 500 square feet in projected roof area.

**424.9.2 Substructure.** Automatic sprinklers shall be installed under the substructure of every new waterfront structure in accordance with NFPA 307 and as specified in Chapter 9.

**Exceptions:**

1. Combustible substructures whose deck area does not exceed 8,000 square feet (743.2 m<sup>2</sup>) supporting no superstructures.

2. Combustible substructures whose deck area does not exceed 8,000 square feet (743.2 m<sup>2</sup>) supporting superstructures not required to be provided with an approved automatic sprinkler system as specified in Section 424.9.3.

3. Noncombustible substructures with or without superstructures.

4. Substructures, over other than tidal water, where sprinkler heads cannot be installed with a minimum clearance of 4 feet (1219 mm) above mean high water.

5. Substructures resulting from walkways or finger piers that do not exceed 10 feet (3048 mm) in width.

**424.9.3 Superstructure.** Automatic sprinklers shall be provided in superstructures as specified in Chapter 9.

**424.9.4 Monitoring.** Sprinkler systems shall be monitored by an approved central station service.

**424.10 Smoke and heat vents.** Approved automatic smoke and heat vents shall be provided in covered boat moorage areas exceeding 2,500 square feet (232 m<sup>2</sup>) in area, excluding roof overhangs.

**Exception:** Smoke and heat vents are not required in areas protected by automatic sprinklers.

**424.10.1 Design and installation.** Where smoke and heat vents are required they shall be installed near the roof peak, evenly distributed and arranged so that at least one vent is over each covered berth. The effective vent area shall be calculated using a ratio of one square foot of vent to every fifteen square feet of covered berth area (1:15). Each vent shall provide a minimum opening size of 4 feet by 4 feet.

**424.10.2 Automatic operation.** Smoke and heat vents shall operate automatically by actuation of a heat-responsive device rated at between 100 F (56 C) and 220 F (122 C) above ambient.

**Exception:** Gravity-operated drop out vents.

**424.10.3 Gravity-operated drop out vents.** Gravity operated dropout vents shall fully open within five minutes after the vent cavity is exposed to a simulated fire represented by a time-temperature gradient that reaches an air temperature of 500 F (260 C) within five minutes.

**424.11 Draft curtains.** Draft curtains shall be provided in covered boat moorage areas exceeding 2,500 square feet (232 m<sup>2</sup>) in area, excluding roof overhangs.

**Exception:** Draft curtains are not required in areas protected by automatic sprinklers.

**424.11.1 Draft curtain construction.** Draft curtains shall be constructed of sheet metal, gypsum board or other approved materials that provide equivalent performance to resist the passage of smoke. Joints and connections shall be smoke tight.

**424.11.2 Draft curtain location and depth.** The maximum area protected by draft curtains shall not exceed 2,000 square feet (186 m<sup>2</sup>) or two slips or berths, whichever is smaller. Draft curtains shall not extend past the piling line. Draft curtains shall have a minimum depth of 2 feet (609 mm) below the lower edge of the roof and shall not extend closer than 8 feet (2438 mm) to the walking surface on the pier.

**424.12 Fire department connections.** Standpipe and sprinkler systems shall be equipped with not less than a two-way 2½-inch fire department connection, which shall be readily visible and located at the fire department apparatus access. The fire department connection for Class I standpipe systems may be located at the shore end of the pier, wharf, or float if the distance between the fire apparatus access road and fire department connection is less than 150 feet (45 720 mm). See Chapter 48 of the Seattle Fire Code for requirements for fire hydrants.

**424.13 Marina fire protection confidence testing.** Standpipe and sprinkler systems shall be inspected and tested in compliance with the Seattle Fire Code.

**424.14 Fire department access.** Fire department apparatus access lanes, not less than 20 feet wide and capable of supporting a 50,000-pound vehicle or 24,000 pounds per axle (HS20



loading), shall be provided and so located as to provide fire department apparatus access to within 50 feet travel distance to the shore end of all piers, wharves and floats.

## **SECTION 425**

### **PRIVATE AND UTILITY TRANSFORMER VAULTS**

**425.1 Scope.** Vaults housing private and utility transformers shall comply with the provisions of this chapter and Article 450 of the *Seattle Electrical Code*. The provisions of this chapter are minimum standards for all transformer vaults. Vaults containing utility transformers or equipment are required to comply with additional requirements of Seattle City Light.

#### **425.2 Definitions.**

**PRIVATE TRANSFORMER VAULT.** Vaults that contain transformer equipment that is not owned by Seattle City Light or other electric power utility.

**UTILITY TRANSFORMER VAULT.** Vaults containing transformer equipment owned by Seattle City Light or other electric power utility.

#### **425.3 When required.**

**425.3.1. Utility transformers.** Transformer vaults are required for all utility transformers located inside a building. Seattle City Light shall approve the size, location, and layout of all utility vaults.

**Exception:** Vaults are not required for certain dry-type transformers rated 600 volts or less.

**425.3.2 Private transformers.** Transformer vaults are required for all oil-insulated private transformers. Vaults are required for other private transformers rated over 35,000 volts that are located inside a building.

**Exception:** Vaults are not required for certain oil-insulated private transformers in accordance with Sections 450.26 and 450.27 of the Seattle Electrical Code.

**Note:** Article 450, Part II of the Seattle Electrical Code contains requirements for transformers not required to be in a vault.

#### **425.4 Access to transformer vaults.**

**425.4.1 General access.** At least one door or hatch shall be provided in every vault. The opening shall be adequate in size to permit the installation and removal of the equipment located in the vault, and shall be kept unobstructed at all times. An unobstructed level area shall be provided at the entrance to all vaults. The level area shall be large enough to allow for movement of the transformer and equipment into and out of the vault.

**425.4.2 Utility transformer vault access.** Utility transformer vaults shall be accessible to Seattle City Light personnel at all times. If it is necessary to pass through locked doors to reach a vault, keys to those doors shall be kept in a key box that can be opened with the key to the transformer vault. The key box shall be mounted near the first door requiring a non-transformer door key. Persons other than Seattle City Light personnel shall not have access to utility transformer vaults without Seattle City Light personnel present.

All doors between the vault and the building exterior shall be large enough to accommodate the placement or removal of transformers. See Section 425.7.2 for doorway requirements.

Utility transformer vaults shall be located so that there is an equipment access path between the vault and the building exterior. The path shall comply with the following.

1. Sufficient horizontal and vertical clearance for the required transformer shall be provided;

2. The floor shall be smooth, without seams or ridges to impede transportation of heavy equipment;

3. There shall not be excessive slope as determined by Seattle City Light; and

4. The floor shall be designed to support the weight of the transformer and all equipment needed to move the transformer.

If Seattle City Light determines that it is infeasible to design a path in the prescribed manner, the building owner shall enter into a Transportation Agreement with Seattle City Light. The Transportation Agreement obligates the building owner to transport equipment between the right of way and the transformer vault whenever the Superintendent of Seattle City Light determines it is necessary, and to pay all costs for equipment transportation.

**Note:** The Transportation Agreement is a measure of last-resort and permitted only with prior Seattle City Light approval. A viable path for equipment transportation between the right-of-way and the transformer vault should be a primary design consideration.

**425.5 Location of transformer vaults.** Transformer vaults shall be located where they can be ventilated to the outside air without using flues or ducts wherever such an arrangement is practicable. Transformer vaults shall be dry and not subject to running, standing or infiltration of water.

Transformer vaults shall not be located where they are subject to flooding due to ground water without specific written approval by Seattle City Light.

**425.6 Construction.**

**425.6.1 Private transformer vaults.** Private transformer vaults shall comply with the following minimum requirements.

1. All private transformer vaults shall be of at least three-hour fire-resistive construction.

**Exceptions:** Subject to the approval of the building official, where the total capacity of private oil-insulated transformers does not exceed 112-1/2 kVA, the vault is permitted to be constructed of reinforced concrete not less than 4 inches (102 mm) thick.

2. Vault floors in contact with the earth shall be of concrete not less than 4 inches thick.

3. The transformer shall be anchored to inserts embedded in the concrete floor.

4. In pre-tensioned or post-tensioned concrete, cable locations shall be permanently marked on the surface of the concrete over the encased tendons.

5. Vault dimensions shall be adequate for required ventilation and working clearances.

**425.6.2 Utility transformer vaults.** Utility transformer vaults shall comply with the following minimum requirements. The Superintendent of Seattle City Light is authorized to adjust the requirements of this Section 425.6.2 when deemed necessary.

1. Floors, walls and ceilings of utility transformer vaults shall have at least a three-hour fire-resistance rating and shall be constructed of solid concrete or concrete-filled concrete masonry units at least 6 inches (152 mm) thick.

2. Vault floors shall be smooth with no pads.

3. Seismic anchor inserts shall be embedded in the floor and steel support channels shall be embedded in the ceiling when required by the Superintendent of Seattle City Light.

1 4. Pre-tensioned or post-tensioned concrete shall have the cable locations permanently marked  
2 on the surface of the concrete over the encased tendons.

3 5. Vault dimensions shall depend upon physical size and number of secondary connection  
4 devices, working clearances, and shall be approved by the Superintendent of Seattle City Light.

5 **425.7 Openings into transformer vaults.**

6 **425.7.1 Protection of openings.** All doorways opening into a transformer vault from the  
7 building interior shall be protected by opening protectives having a fire-protection rating equal to  
8 that required for the vault.

9 **425.7.2 Doorways.** All doors shall be made of three-hour fire-resistance-rated steel and shall  
10 swing out of the vault 180 degrees. Doors that may be prevented from swinging 180 degrees  
11 outward as a result of blockage by vehicles or mobile equipment shall be protected by bollards.  
12 The bollards shall preserve the door swing area and shall not obstruct the doorway. Equipment  
13 access doorways shall be sized to accommodate the transformer placement and removal  
14 including the equipment necessary to place or remove the transformer.

15 Equipment access doorways to vaults containing only single-phase utility transformers shall  
16 have clear openings no less than 42 inches (1067 mm) wide and 6 feet 8 inches (2057 mm) high.  
17 Equipment access doorways for all other utility transformers shall be sized to accommodate the  
18 transformer placement and as specified by Seattle City Light to allow equipment installation and  
19 removal.

20 Doorways for personnel access shall have clear openings of at least 36 inches (914 mm) wide  
21 and 6 feet 8 inches (2057 mm) high.

**425.7.2.1 Locks.** All doors shall be equipped with locks and shall be kept locked. Doors to utility transformer vaults shall be equipped with a cylinder capable of accepting the core provided by the utility. Personnel doors shall be equipped with panic bars, pressure plates, or other devices that are normally latched but open under simple pressure.

**425.7.2.2 Oil containment sill.** A removable oil containment sill shall be as high as necessary to contain the oil of one transformer but in no case less than 4 inches (203 mm) high or as specified by Seattle City Light for utility transformers. A sill shall be installed within the vault at each doorway after the installation of the transformer.

**425.8 Ventilation systems for transformer vaults.**

**425.8.1 General.** Ventilation systems shall be provided to dispose of heat from transformer total losses without creating a temperature rise that exceeds the transformer rating.

**425.8.2 Method of ventilation.** Ventilation shall be provided by either natural circulation or mechanical circulation.

**425.8.2.1 Natural circulation.** Transformer vaults containing up to three transformers of no more than 75 kVA each are permitted to be ventilated by natural circulation. The combined minimum net intake and exhaust vent area, exclusive of area occupied by screens, grating or louvers, shall not be less than 3 square inches (1935 mm<sup>2</sup>) per kVA of transformer capacity. The total required area shall be divided roughly equally between intake and exhaust. In no case shall either the intake or exhaust area be less than 72 square inches (46 452 mm<sup>2</sup>).

Approximately one half the total area required for ventilation openings shall be for intake air.  
Intake air vents shall be located in one or more openings in the lower portion of the exterior vault

walls. When the vault is located in a garage, any lower openings must be at least 18 inches above the garage floor level. The remaining one half the required ventilation area shall be used to exhaust heat through one or more openings in the upper portion of the exterior walls or roof of the vault. Intake openings shall be located on the opposite side of the vault from exhaust openings allowing air to flow longitudinally over the transformer and out of the vault. Intake openings shall not be located in the ceiling of the vault.

**425.8.2.2 Mechanical circulation.** Positive or negative pressure ventilation systems shall supply a minimum of 1.6 cfm (.76 L/s) of air per kVA of transformer capacity. The fans shall be installed outside of the vault and shall be controlled by a thermostat located inside the vault. The intake vents shall be located in the lower one half of the exterior walls of the vault. When the vault is located in a garage, any lower openings must be at least 18 inches above the garage floor level. The exhaust vents shall be in the roof or ceiling of the vault or in the upper half of the vault walls. The ventilation system shall cause air to flow longitudinally across the transformers. The vault ventilation system shall be controlled independently from the rest of the building ventilation.

For utility transformer vaults, mechanical ventilation systems shall be designed by the applicant. The capacity and location of the ventilation system shall be approved by the Superintendent of Seattle City Light

**425.8.2.3 Temperature control.** A remote temperature controller shall be installed in utility transformer vaults that have mechanical ventilation systems. The controller shall activate the fan

when the temperature in the vault exceeds 70 F (21°C), and shall turn the fan off when the temperature reaches 140 F (60°C).

A visible or audible alarm shall be installed outside each utility transformer vault that will be activated if the fan does not operate when the temperature controller calls for ventilation, or if the fan becomes inoperable. A sign shall be mounted near the alarm stating CALL SEATTLE CITY LIGHT WHEN ALARM SOUNDS or CALL SEATTLE CITY LIGHT WHEN LIGHT IS ON.

**425.8.3 Ventilation openings and duct terminations.** Ventilation openings and duct terminations shall comply with Seattle Mechanical Code Section 501.2.1.7, unless otherwise approved by the building official.

**425.8.3.1 Location of exhaust ventilation openings and exhaust duct terminations.** Exhaust ventilation openings and duct terminations shall be located not less than 10 feet (3048 mm) from fire escapes, required means of egress, combustibile materials, unprotected openings and property lines. Exhaust outlets shall be located on the exterior of the building.

**425.8.3.2 Covering.** Ventilation openings shall be covered with durable metal gratings, screens or louvers. If operable intake louvers are provided on mechanically ventilated transformer vaults, the louvers shall be controlled by the fan thermostat, i.e. the louvers shall be opened when the fan is energized.

**425.8.3.3 Opening protection.** Intake ventilation openings in the vault walls on the interior of the building shall be protected by automatic closing fire dampers having a fire-protection rating at least equal to that required for the vault. The actuating device on the fire damper should be made to function at a temperature of 140°F (60°C).



**425.8.3.4 Ventilation ducts.** Exhaust ventilation ducts, if used, shall be enclosed in construction having a fire-resistance rating at least equal to that required for the vault. Exhaust ducts shall extend from the vault to the outside of the building. An exhaust duct for a mechanically ventilated vault shall be used exclusively for ventilating the vault. No fire dampers shall be installed in exhaust ventilation ducts.

**425.9 Drainage for vaults.**

**425.9.1 General.** Drains are prohibited in all transformer vaults.

**425.9.2 Sumps.** All transformer vaults containing oil-insulated transformers shall have a dry sump. All sumps shall have an opening of at least 6 inches (152 mm) diameter, a depth of at least 12 inches (305 mm), and shall be equipped with a removable steel grate that is flush with the floor. Sumps shall have at least an 8 gallon (30 liter) capacity. Sump capacity may be greater where required by the utility. The sump shall have a grouted bottom. The sump shall be located near, but not directly behind, the personnel door and shall be out of the entry path for moving transformers in and out of the vault. The vault floor shall slope at least 1 inch in 10 feet (25 mm in 305 mm) toward the sump.

**425.10 Pipes and ducts in transformer vaults.** No pipes or ducts foreign to the electrical installation shall enter or pass through any transformer vault. Electrical conduits terminating at transformer vaults shall be sealed with listed three-hour fire-protection rated firestop material. Electrical conduits terminating at transformer vaults shall be installed to avoid channeling water into the vault. Electrical conduits entering the vault floor shall be rigid galvanized steel and shall

1 extend no less than 18 inches (457 mm) into the vault or to the top of the containment sill,  
2 whichever is greater.

3 **425.11 Storage in transformer vaults.** No material shall be stored in any transformer vault.

4 **425.12 Sprinkler systems.** Sprinkler systems shall not be installed within a transformer vault.

5 The vault must be maintained in a dry condition at all times.

6  
7 **[F] SECTION 426**

8 **MEDICAL GAS SYSTEMS**

9 **426.1 General.** Compressed gases at hospitals and similar facilities intended for inhalation or  
10 sedation, including but not limited to, analgesia systems for dentistry, podiatry, veterinary and  
11 similar uses, shall comply with this section in addition to other requirements of *International*  
12 *Fire Code* Chapter 30.

14 **426.2 Interior supply location.** Medical gases shall be stored in areas dedicated to the storage of  
15 such gases without other storage or uses. Where containers of medical gases in quantities greater  
16 than the permit amount are located inside buildings, they shall be in a one hour exterior room, a  
17 one hour interior room or a gas cabinet in accordance with Section 426.2.1, 426.2.2 or 426.2.3,  
18 respectively. Rooms or areas where hazardous medical gases are stored or used in quantities  
19 exceeding the maximum allowable quantity per control area set forth in *International Fire Code*  
20 Section 2703.1 shall comply with the requirements for Group H occupancies.

22 **426.2.1 One-hour exterior rooms.** A one hour exterior room shall be a room or enclosure  
23 separated from the remainder of the building by fire barriers with a fire-resistance rating of not  
24 less than one hour. Openings between the room or enclosure and interior spaces shall be self-  
25

1 closing smoke- and draft-control assemblies having a fire protection rating of not less than one  
2 hour. Rooms shall have at least one exterior wall that is provided with at least two vents. Each  
3 vent shall not be less than 36 square inches (0.023 m<sup>2</sup>) in area. One vent shall be within 6 inches  
4 (152 mm) of the floor and one shall be within 6 inches (152 mm) of the ceiling. Rooms shall be  
5 provided with at least one automatic sprinkler to provide container cooling in case of fire.

6 **426.2.2 One-hour interior room.** When an exterior wall cannot be provided for the room,  
7 automatic sprinklers shall be installed within the room. The room shall be exhausted through a  
8 duct to the exterior. Supply and exhaust ducts shall be enclosed in a one hour-rated shaft  
9 enclosure from the room to the exterior. Approved mechanical ventilation shall comply with the  
10 *International Mechanical Code* and be provided at a minimum rate of 1 cubic foot per minute per  
11 square foot [0.00508 m<sup>3</sup>/(s • m<sup>2</sup>)] of the area of the room.

12 **426.2.3 Gas cabinets.** Gas cabinets shall be constructed in accordance with *International Fire*  
13 *Code* Section 2703.8.6 and the following:

14 1. The average velocity of ventilation at the face of access ports or windows shall not be less than  
15 200 feet per minute (61 m/s) with a minimum of 150 feet per minute (46 m/s) at any point of the  
16 access port or window.

17 2. They shall be connected to an exhaust system.

18 3. They shall be internally sprinklered.

19 **426.3 Exterior supply locations.** Oxidizer medical gas systems located on the exterior of a  
20 building with quantities greater than the permit amount shall be located in accordance with  
21 *International Fire Code* Section 4004.2.1.

**[W] SECTION 427**

**RECYCLABLE MATERIALS**

**427.1 Definition.** The following term shall, for the purposes of this section and as used elsewhere in this code, have the meaning shown herein.

**RECYCLABLE MATERIALS.** Those solid wastes that are separated for recycling or reuse, such as papers, metals and glass.

**427.2 Storage space for recyclable materials.** All occupancies shall be provided with space for the storage of recyclable materials and solid waste.

**Exception:** Group R-3 and Group U occupancies.

The storage area shall be designed to meet the needs of the occupancy, efficiency of pick-up, and shall be available to occupants and haulers.

Section 6. The following sections of Chapter 5 of the International Building Code, 2009 Edition, are amended as follows:

**CHAPTER 5**

**GENERAL BUILDING HEIGHTS AND AREAS**

**SECTION 501**

**GENERAL**

\*\*\*

**[F] 501.2 Address identification.** New and existing buildings shall be provided with *approved* address numbers or letters. Each character shall be a minimum 4 inches (102 mm) high for occupancies in Group R and not less than 5 inches for other occupancies and a minimum of 0.5

1 inch (12.7 mm) wide. They shall be installed on a contrasting background and be plainly visible  
2 from the street or road fronting the property. Where access is by means of a private road and the  
3 building address cannot be viewed from the *public way*, a monument, pole or other *approved*  
4 sign or means shall be used to identify the structure.

5 **501.2.1 Enforcement by building official.** The building official shall determine the address of  
6 any property in the City in accordance with the numbering system established in this Chapter.

7 Whenever the irregularity of plats, the changing direction of streets, avenues, or other  
8 highways, the interruption of the continuity of highways or any other condition causes doubt or  
9 difference of opinion as to the correct number of any piece of property or any building thereon,  
10 the number shall be determined by the building official. The building official shall be guided by  
11 the specific provisions of this chapter as far as they are applicable and when not applicable, by  
12 such rules as are established to carry out the intent of this chapter.

13 **502.2.1.1 Owners to affix and maintain building numbers.** The owner of any building or  
14 other structure shall maintain the street number of each building and structure in a conspicuous  
15 place over or near the principal street entrance or entrances, or in other conspicuous places as is  
16 necessary for the easy locating of such address.

17 **Exception:** Where there are multiple buildings on a site, the building official is permitted to  
18 waive the requirement for posting an address on appurtenant or accessory buildings where  
19 individual identification of each building is not essential.

20 Where a property has frontage along more than one named street, or for any other property,  
21 where there may be confusion regarding the address of a building or structure, the building  
22

official is permitted to require the complete address, including street number and street name to be conspicuously posted.

For buildings served by a private road or a common driveway, the address number(s) shall be posted at the head of the road or driveway in a manner that can be easily read from the intersecting street. Where the existing street grid may not adequately allow for the assignment of street addresses that will promote the easy locating of such addresses, or for any other reason consistent with the intent of this chapter, the building official is permitted to assign a name to the private road or common driveway that shall be used for addressing purposes. In addition, the building official is permitted to require one or more property owners along the road or driveway to post a sign displaying the assigned name at a location near the intersection of the road or driveway with a named public street.

If the building official finds that a building, structure or premises is not provided with numbers as herein required, or is not correctly numbered, the building official is permitted to notify the owner, agent or tenant of the correct street number and require that the number be properly placed, in accordance with the provisions of this chapter, within a reasonable length of time. It is a violation of this code for any person to fail to comply with such notice.

**501.2.2 Numbering system prescribed.** The numerical designation of all doorways and entrances to buildings and lots fronting upon the named right-of-ways of the City are established in accordance with the following system:

Except where otherwise specified, 100 numbers are allotted to each block, provided that where a named right-of-way intervenes between consecutively numbered right-of-ways, 50

1 numbers shall be allotted for each block. One whole number is allotted to each 20 feet (6096  
2 mm) of frontage in each block; even numbers shall be used on the northerly side of named right-  
3 of-ways extending in an easterly and westerly direction and on the easterly side of named right-  
4 of-ways extending in a northerly and southerly direction. Odd numbers shall be used on the  
5 southerly side of named right-of-ways extending in an easterly and westerly direction and on the  
6 westerly side of named right-of-ways extending in a northerly and southerly direction.

7  
8 In the case of irregular named right-of-ways, the frontages shall be numbered as near as may  
9 be according to the uniform series of block numbers with which they most nearly correspond.

### 10 **501.2.3 Numbering of buildings**

11  
12 **501.2.3.1 Numbering of buildings downtown.** Between Yesler Way and Denny Way all  
13 frontages upon named right-of-ways extending in a northerly and southerly direction and  
14 lying west of Broadway, East Union Street, Minor Avenue and Melrose Avenue shall be  
15 numbered as follows:

16 Yesler Way to Fir Street number 100 and upwards, Fir Street to Spruce Street number  
17 150 and upwards, Spruce Street to Alder Street number 200 and upwards, continuing by  
18 consecutive hundreds to Pine Street; Pine Street to Olive Way number 1600 and upwards,  
19 Olive Way to Howell Street number 1700 and upwards, Howell Street to Stewart Street  
20 number 1800 and upwards, Stewart Street to Virginia Street number 1900 and upwards,  
21 continuing by consecutive hundreds to Denny Way.  
22  
23  
24  
25  
26  
27  
28

Between East Yesler Way and East Denny Way all frontages upon named right-of-ways extending in a northerly and southerly direction and lying east of Broadway, East Union Street, Minor Avenue and Melrose Avenue shall be numbered as follows:

East Yesler Way to East Fir Street number 100 and upwards, East Fir Street to East Spruce Street number 150 and upwards, East Spruce Street to East Alder Street number 200 and upwards, continuing by consecutive hundreds to East Marion Street; East Marion Street to East Spring Street number 900 and upwards, East Spring Street to East Union Street number 1100 and upwards, East Union Street to East Pike Street number 1400 and upwards, continuing by consecutive hundreds to East Denny Way.

Between East Yesler Way and East Denny Way all frontages upon named right-of-ways extending in an easterly and westerly direction and lying west of Broadway, East Union Street, Minor Avenue and Melrose Avenue shall be numbered as follows:

Southwesterly from Elliott Avenue, or Alaskan Way if south of Lenora Street, number 51 and downwards; Elliott Avenue (or Alaskan Way) to Western Avenue number 52 and upwards; Western Avenue to First Avenue number 76 and upwards; First Avenue to Second Avenue number 100 and upwards, continuing northeasterly to Broadway, East Union Street, Minor Avenue, or Melrose Avenue by consecutive hundreds.

Between East Yesler Way and East Denny Way all frontages upon named right-of-ways extending in an easterly and westerly direction and lying east of Broadway, East Union Street, Minor Avenue and Melrose Avenue shall be numbered as follows:



Melrose Avenue to Bellevue Avenue number 300 and upwards, Bellevue Avenue to Summit Avenue number 400 and upwards, continuing by consecutive hundreds to Broadway.

Broadway to Tenth Avenue number 900 and upwards, Tenth Avenue to Eleventh Avenue number 1000 and upwards, continuing by consecutive hundreds corresponding with the numbered series of avenues eastward to Lake Washington.

On East Olive Way eastward from Melrose Avenue, the street numbers shall run upwards consecutively, eastward from the existing street numbers that are west of the Melrose Avenue intersection.

**501.2.3.2 Numbering of buildings south of downtown and east of the East Waterway.**

South of Yesler Way the frontages upon the named right-of-ways extending in a northerly and southerly direction shall be numbered as follows:

Yesler Way (or East Yesler Way) to South Washington Street number 100 and upwards, South Washington Street to South Main Street number 200 and upwards, South Main Street to South Jackson Street number 300 and upwards, South Jackson Street to South King Street number 400 and upwards, continuing by consecutive hundreds to South Barton Place, with blocks and streets on Rainier Avenue South being taken as the controlling series.

South of South Barton Place, 51st Avenue South shall be taken as the controlling series to the southern City limits.

On Second Avenue Extension South from Fourth Avenue South to Yesler Way, the frontages shall be numbered as follows:

From Fourth Avenue South to South Jackson Street number 100 and upwards, South Jackson Street to South Main Street number 200 and upwards, South Main Street to South Washington Street number 300 and upwards, South Washington Street to Yesler Way number 400 and upwards.

South of Yesler Way the frontages upon named right-of-ways extending in an easterly and westerly direction shall be numbered as follows:

Westward from First Avenue South to the Harbor Line or East Waterway number 99 and downwards, First Avenue South to Occidental Avenue South number 100 and upwards, Occidental Avenue South to Second Avenue South number 150 and upwards, Second Avenue South to Third Avenue South number 200 and upwards, continuing by consecutive hundreds to Sixth Avenue South; Sixth Avenue South to Maynard Avenue South number 600 and upwards, Maynard Avenue South to Seventh Avenue South number 650 and upwards, Seventh Avenue South to Eighth Avenue South (or Airport Way south of South Hinds Street) number 700 and upwards, Eighth Avenue South (or Airport Way south of South Hinds Street) to Airport Way South (or Ninth Avenue South south of South Hinds Street) number 800 and upwards, Airport Way South (or Ninth Avenue South south of South Hinds Street) to Interstate-5 number 900 and upwards, continuing eastward by consecutive hundreds corresponding with the numbered series of avenues to Lake Washington.

**501.2.3.3 Numbering of buildings between downtown and the Lake Washington Ship Canal.** North of Denny Way, East Denny Way, and East Howell Street east of Madrona

Drive the frontages upon the named right-of-ways extending in a northerly and southerly direction shall be numbered as follows:

Denny Way (and East or West Denny Way) to John Street (and East or West John Street) number 100 and upwards, continuing by consecutive hundreds, the blocks and streets on Queen Anne Avenue North being taken as a controlling series for numbering purposes west of Fairview Avenue North (or Fairview Avenue East) and south of Bertona Street (or West Bertona Street); 36<sup>th</sup> Avenue West being taken as the controlling series for numbering purposes west of Fairview Ave North (or Fairview Ave East) and north of Bertona Street (or West Bertona Street); Tenth Avenue East being taken as the controlling series for numbering purposes east of Fairview Avenue North (or Fairview Avenue East).

Between Queen Anne Avenue North and Eastlake Avenue East (East Galer being the northeast boundary of this subsection) the frontages on the named right-of-ways extending in an easterly and westerly direction shall be numbered as follows:

Queen Anne Avenue North to First Avenue North number 1 and upwards, First Avenue North to Warren Avenue North number 100 and upwards, Warren Avenue North to Second Avenue North number 150 and upwards, Second Avenue North to Third Avenue North number 200 and upwards, continuing by consecutive hundreds corresponding to the numbered series of avenues with half hundreds in the case of Nob Hill, Taylor, Bigelow, Mayfair, and Dexter Avenues North, to Ninth Avenue North; Ninth Avenue North to Westlake Avenue North number 900 and upwards, Westlake Avenue North to Terry Avenue North number 950 and upwards, Terry Avenue North to Boren Avenue North number 1000

1 and upwards, Boren Avenue North to Fairview Avenue North number 1100 and upwards,  
2 Fairview Avenue North to Minor Avenue North number 1150 and upwards, Minor Avenue  
3 North to Pontius Avenue North number 1200 and upwards, Pontius Avenue North to Yale  
4 Avenue North number 1250 and upwards, Yale Avenue North to Eastlake Avenue East  
5 number 1300 and upwards.

6 East of Eastlake Avenue East (or Fairview Avenue East north of East Galer Street)  
7 and North of East Denny Way the frontages upon the named east-west right-of-ways  
8 extending in an easterly and westerly direction shall be numbered as follows:

9 Eastlake Avenue East to Melrose Avenue East number 200 and upwards continuing  
10 by consecutive hundreds eastward to Broadway East; Broadway East to Tenth Avenue East  
11 number 900 and upwards, Tenth Avenue East to Federal Avenue East number 1000 and  
12 upwards, Federal Avenue East to Eleventh Avenue East number 1050 and upwards, Eleventh  
13 Avenue East to Twelfth Avenue East number 1100 and upwards, continuing by consecutive  
14 hundreds eastward to Lake Washington.

15 West of Queen Anne Avenue North the frontages upon named east-west right-of-  
16 ways extending in an easterly and westerly direction shall be numbered westward as follows:

17 Queen Anne Avenue North to First Avenue West number 1 and upwards, First  
18 Avenue West to Second Avenue West number 100 and upwards, continuing by consecutive  
19 hundreds westward

**501.2.3.4 Numbering of buildings north of the Lake Washington Ship Canal.** The plan for the numbering of frontages upon the various named right-of-ways in that portion of the City of Seattle lying north of the Lake Washington Ship Canal is established as follows:

The frontages upon the named right-of-ways extending in a northerly and southerly direction shall be numbered in accordance with the designations of the intersecting numbered streets as follows: northward from the State Harbor Line, number 2900 and upwards.

The frontages upon the named right-of-ways extending in an easterly and westerly direction shall be numbered as follows:

West from First Avenue Northwest, commencing with 100, and continuing west in correspondence with the numbers of the avenues to Puget Sound.

East from First Avenue Northwest, commencing with 100 and continuing as follows:  
East from Palatine Avenue North, 200 and upwards; from Greenwood Avenue North, 300 and upwards; from Phinney Avenue North, 400 and upwards; from Francis Avenue North, 450 and upwards; from Dayton Avenue North, 500 and upwards; from Evanston Avenue North, 600 and upwards; from Fremont Avenue North, 700 and upwards; from North Park Avenue North, 800 and upwards; from Linden Avenue North, 900 and upwards (800 and upwards south of North 65<sup>th</sup> Street); from Aurora Avenue North, 900 and upwards (1100 and upwards north of North 65<sup>th</sup> Street); from Winslow Place North, 950 and upwards; from Whitman Avenue North 1000 and upwards; from Albion Place North, 1050 and upwards; from Woodland Park Avenue North, 1100 and upwards; from Nesbit Avenue North, 1150 and upwards; from Midvale Avenue North, 1200 and upwards; from Lenora Place North,

1250 and upwards; from Stone Avenue North (Stone Way North south of North 46<sup>th</sup> Street),  
1300 and upwards; from Interlake Avenue North, 1400 and upwards; from Ashworth Avenue  
North, 1500 and upwards; from Carr Place North, 1550 and upwards; from Woodlawn  
Avenue North, 1600 and upwards, from Densmore Avenue North, 1700 and upwards; from  
Caroline Avenue North and Courtland Place North, 1750 and upwards; from Wallingford  
Avenue North, 1800 and upwards; from Burke Avenue North and Canfield Place North, 1900  
and upwards; From Stroud Avenue North and Wayne Place North, 2000 and upwards; from  
Meridian Avenue North, 2100 and upwards; from Bagley Avenue North, 2200 and upwards;  
from Corliss Avenue North, 2300 and upwards; from Sunnyside Avenue North, 2400 and  
upwards; and from Eastern Avenue North, 2500 and upwards.

East from First Avenue Northeast, commencing with 100, and continuing east in  
correspondence with the numbered avenues to Lake Washington.

**501.2.3.5 Numbering buildings on Harbor Island.** The frontages upon named right-of-  
ways extending in a northerly and southerly direction shall be numbered as follows:

Southwest Massachusetts Street to Southwest Florida Street, number 1700 and  
upwards; Southwest Florida Street to Southwest Lander Street, number 2500 and upwards;  
Southwest Lander Street to Southwest Hanford Street, number 2700 and upwards; Southwest  
Hanford Street to Southwest Spokane Street, number 3200 and upwards.

The frontages upon named right-of-ways extending in an easterly and westerly  
direction shall be numbered as follows:

The East Waterway to 11<sup>th</sup> Avenue Southwest, number 900 and upwards; 11<sup>th</sup> Avenue Southwest to 13<sup>th</sup> Avenue Southwest, number 1100 and upwards; 13<sup>th</sup> Avenue Southwest to 16<sup>th</sup> Avenue Southwest, number 1300 and upwards; 16<sup>th</sup> Avenue Southwest to the West Waterway, number 1600 and upwards.

**501.2.3.6 Numbering buildings west of the West Waterway and the Duwamish**

**Waterway.** The frontages upon named right-of-ways extending in a northerly and southerly direction, shall be numbered as follows:

North of Southwest Andover Street, commencing with 3800 and continuing north to the Duwamish Head by consecutive hundreds, the blocks and streets on California Avenue Southwest being taken as the controlling series for numbering purposes.

South of Southwest Andover Street, commencing with 4000 and continuing south to Southwest Roxbury Street by consecutive hundreds, the blocks and streets of California Avenue Southwest being taken as the controlling series for numbering purposes.

South of Southwest Roxbury Street, commencing with 9600 and continuing south to the south City limits by consecutive hundreds, in correspondence with the numbers of the intersecting streets.

The frontages upon named right-of-ways extending in an easterly and westerly direction, shall be numbered as follows:

West of California Avenue Southwest, commencing with 4300 and continuing westward in correspondence with the numbers of the intersecting avenues to Puget Sound.

East of California Avenue Southwest, commencing with 4200 and continuing  
eastward in correspondence with the numbers of the intersecting avenues to the Duwamish  
Waterway.

## SECTION 502

### DEFINITIONS

**502.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**AREA, BUILDING.** The area included within surrounding *exterior walls* (or *exterior walls* and *fire walls*) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the *building area* if such areas are included within the horizontal projection of the roof or floor above.

**BASEMENT.** A *story* that is not a *story above grade plane* (see “*Story above grade plane*” in Section 202). The definition of “Basement” does not apply to the provisions of Section 1612 for flood loads (see “Basement” in Section 1612.2).

**EQUIPMENT PLATFORM.** An unoccupied, elevated platform used exclusively for mechanical systems or industrial process equipment, including the associated elevated walkways, *stairs, alternating tread devices* and ladders necessary to access the platform (see Section 505.5).

**GRADE PLANE.** A reference plane representing the average of finished ground level adjoining the building at *exterior walls*. Where the finished ground level slopes away from the *exterior walls*, the reference plane shall be established by the lowest points within the area between the building and the *lot line* or, where the *lot line* is more than 6 feet (1829 mm) from the building,



between the building and a point 6 feet (1829 mm) from the building. For grade of structures built over water, see Section 424.2.

**HEIGHT, BUILDING.** The vertical distance from *grade plane* to the average height of the highest roof surface other than rooftop structures complying with Section 1509.

**MEZZANINE.** An intermediate level or levels between the floor and ceiling of any *story* and in accordance with Section 505.

## SECTION 503

### GENERAL BUILDING HEIGHT AND AREA LIMITATIONS

**503.1 General.** The *building height*, number of stories above grade plane, and *area* shall not exceed the limits specified in Table 503 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. Each portion of a building separated by one or more *fire walls* complying with Section 706 shall be considered to be a separate building.

**Interpretation I503a:** An unenclosed and uncovered roof deck shall not be considered a story for the purpose of determining the number of stories in a building.

**Interpretation I503b:** In stepped or terraced buildings, the number of stories is the number counted from the first story above grade plane of the lowest building segment to the top story of the highest building segment. For purposes of this interpretation, portions of buildings divided by fire walls shall be considered separate buildings.

**503.1.1 Special industrial occupancies.** Buildings and structures designed to house special industrial processes that require large areas and unusual *building heights* to accommodate

craneways or special machinery and equipment, including, among others, rolling mills; structural metal fabrication shops and foundries; or the production and distribution of electric, gas or steam power, shall be exempt from the *building height and area* limitations of Table 503.

**503.1.2 Buildings on same lot.** Two or more buildings on the same lot shall be regulated as separate buildings or shall be considered as portions of one building if the *building height* of each building and the aggregate *building area* of the buildings are within the limitations of Table 503 as modified by Sections 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.

**503.1.3 Type I construction.** Buildings of Type I construction permitted to be of unlimited tabular building heights and areas are not subject to the special requirements that allow unlimited area buildings in Section 507 or unlimited *building height* in Sections 503.1.1 and 504.3 or increased *building heights and areas* for other types of construction.

**TABLE 503**

**ALLOWABLE BUILDING HEIGHTS AND AREAS<sup>a</sup>**

**Building height limitations shown in feet above grade plane. Story limitations shown as stories above grade plane.**

**Building area limitations shown in square feet, as determined by the definition of “Area, building,” per story**

	TYPE OF CONSTRUCTION									
	TYPE I		TYPE II		TYPE III		TYPE IV		TYPE V	
	A	B	A	B	B	A	B	HT	A	B

HEIGHT											
(feet)	UL	160	65	55	55	65	55	65	50	40	
GROU	STORIES (S) AREA (A)										
P											
				3			3		3	2	1
	S	UL	5	15,5	2	2	14,00	2	15,00	11,50	5,50
A-1	A	UL	UL	00	8,500	8,500	0	8,500	0	0	0
				3			3		3	2	1
	S	UL	11	15,5	2	2	14,00	2	15,00	11,50	6,00
A-2	A	UL	UL	00	9,500	9,500	0	9,500	0	0	0
				3			3		3	2	1
	S	UL	11	15,5	2	2	14,00	2	15,00	11,50	6,00
A-3	A	UL	UL	00	9,500	9,500	0	9,500	0	0	0
				3			3		3	2	1
	S	UL	11	15,5	2	2	14,00	2	15,00	11,50	6,00
A-4	A	UL	UL	00	9,500	9,500	0	9,500	0	0	0
	S	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL
A-5	A	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL
				5	3		5		5	3	2
	S	UL	11	37,0	23,00	3	28,50	3	36,00	18,00	9,00
B	A	UL	UL	00	0	23,000	0	19,000	0	0	0

				3	2		3		3	1	1
	S	UL	5	26,5	14,50	2	23,50	2	25,50	18,50	9,50
E	A	UL	UL	00	0	14,500	0	14,500	0	0	0
				4	2		3		4	2	1
	S	UL	11	25,0	15,50	2	19,00	2	33,50	14,00	8,50
F-1	A	UL	UL	00	0	15,500	0	12,000	0	0	0
				5	3		4		5	3	2
	S	UL	11	37,0	23,00	3	28,50	3	50,50	21,00	13,0
F-2	A	UL	UL	00	0	23,000	0	18,000	0	0	00
			1	1					1		
	S	1	16,50	11,0	1	1	1	1	10,50	1	NP
H-1	A	21,000	0	00	7,000	7,000	9,500	7,000	0	7,500	NP
			3	2					2		1
	S	UL	16,50	11,0	1	1	2	1	10,50	1	3,00
H-2 <sup>d</sup>	A	21,000	0	00	7,000	7,000	9,500	7,000	0	7,500	0
			6	4	2		4		4	2	1
	S	UL	60,00	26,5	14,00	2	17,50	2	25,50	10,00	5,00
H-3 <sup>d</sup>	A	UL	0	00	0	14,000	0	13,000	0	0	0
				5	3		5		5	3	2
	S	UL	7	37,5	17,50	3	28,50	3	36,00	18,00	6,50
H-4	A	UL	UL	00	0	17,500	0	17,500	0	0	0

				3	3		3		3	3	2
	S	4	4	37,5	23,00	3	28,50	3	36,00	18,00	9,00
H-5	A	UL	UL	00	0	23,000	0	19,000	0	0	0
			9	4	3		4		4	3	2
	S	UL	55,00	19,0	10,00	3	16,50	3	18,00	10,50	4,50
I-1	A	UL	0	00	0	10,000	0	10,000	0	0	0
				2	1		1		1		
	S	UL	4	15,0	11,00	1	12,00	NP	12,00	1	NP
I-2	A	UL	UL	00	0	11,000	0	NP	0	9,500	NP
				2	1		2		2		1
	S	UL	4	15,0	10,00	1	10,50	1	12,00	2	5,00
I-3	A	UL	UL	00	0	10,000	0	7,500	0	7,500	0
			5	3	2		3		3	1	1
	S	UL	60,50	26,5	13,00	2	23,50	2	25,50	18,50	9,00
I-4	A	UL	0	00	0	13,000	0	13,000	0	0	0
				4	2		4		4	3	1
	S	UL	11	21,5	12,50	2	18,50	2	20,50	14,00	9,00
M	A	UL	UL	00	0	12,500	0	12,500	0	0	0
				4	4		4		4	((3))	2
	S	UL	11	24,0	16,00	4	24,00	4	20,50	<u>4</u>	7,00
R-1	A	UL	UL	00	0	16,000	0	16,000	0	12,00	0

										0	
										((3))	
				4	4		4		4	<u>4</u>	2
	S	UL	11	24,0	16,00	4	24,00	4	20,50	12,00	7,00
R-2	A	UL	UL	00	0	16,000	0	16,000	0	0	0
										((3))	
	S	UL	11	4	4	4	4	4	4	<u>4</u>	3
R-3	A	UL	UL	UL	UL	UL	UL	UL	UL	UL	UL
				4	4		4		4	3	2
	S	UL	11	24,0	16,00	4	24,00	4	20,50	12,00	7,00
((R-4	A	UL	UL	00	0	16,000	0	16,000	0	0	0))
			11	4	2		3		4	3	1
	S	UL	48,00	26,0	17,50	2	26,00	2	25,50	14,00	9,00
S-1	A	UL	0	00	0	17,500	0	17,500	0	0	0
			11	5	3		4		5	4	2
	S	UL	79,00	39,0	26,00	3	39,00	3	38,50	21,00	13,5
S-2 <sup>b, c</sup>	A	UL	0	00	0	26,000	0	26,000	0	0	00
			5	4			3		4		1
	S	UL	35,50	19,0	2	2	14,00	2	18,00	2	5,50
U <sup>c</sup>	A	UL	0	00	8,500	8,500	0	8,500	0	9,000	0

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929m<sup>2</sup>.

A = building area per story, S = stories above grade plane, UL = Unlimited, NP = Not permitted.

a. See the following sections for general exceptions to Table 503:

1. Section 504.2, Allowable building height and story increase due to automatic sprinkler system installation.

2. Section 506.2, Allowable building area increase due to street frontage.

3. Section 506.3, Allowable building area increase due to automatic sprinkler system installation.

4. Section 507, Unlimited area buildings.

b. For open parking structures, see Section 406.3.

c. For private garages, see Section 406.1.

d. See Section 415.5 for limitations.

## SECTION 504

### BUILDING HEIGHT

\*\*\*

**504.3 Rooftop structures.** Towers, spires, steeples and other rooftop structures shall be constructed of materials consistent with the required type of construction of the building except where other construction is permitted by Section 1509.2.4. Such structures shall not be used for habitation or storage. The structures shall be unlimited in height if of noncombustible materials and shall not extend more than 20 feet (6096 mm) above the allowable *building height* if of combustible materials (see Chapter 15 for additional requirements).

## SECTION 505

### MEZZANINES

**505.1 General.** A *mezzanine* or *mezzanines* in compliance with Section 505 shall be considered a portion of the *story* in which it is contained. Such *mezzanines* shall not contribute to either the *building area* or number of *stories* as regulated by Section 503.1. The area of the *mezzanine* shall be included in determining the *fire area* defined in Section 902. The clear height above and below the *mezzanine* floor construction shall not be less than 7 feet (2134 mm).

**Interpretation I505.1:** Mezzanines within individual dwelling units shall not be located above other dwelling units or common space other than corridors.

**505.2 Area limitation.** The aggregate area of a *mezzanine* or *mezzanines* within a room shall not exceed ((~~one-third~~)) one-half of the floor area of that room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the *mezzanine* is located. In determining the allowable *mezzanine* area, the area of the *mezzanine* shall not be included in the floor area of the room.

**Exceptions:**

1. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction for special industrial occupancies in accordance with Section 503.1.1 shall not exceed two-thirds of the floor area of the room.

~~((2. The aggregate area of *mezzanines* in buildings and structures of Type I or II construction shall not exceed one-half of the floor area of the room in buildings and structures equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 and an approved emergency voice/alarm communication system in accordance with Section 907.5.2.2.))~~



2. The area of the mezzanine floor within a dwelling unit shall not exceed one-half of the area of the main floor of the dwelling unit.

**Interpretation I505.2:** Only such main floor area conforming to clear height requirements of Section 505.1 shall be used in calculating the allowable area of the mezzanine floor.

\*\*\*

**505.4 Openness.** A *mezzanine* shall be open and unobstructed to the room in which such *mezzanine* is located except for walls not more than 42 inches (1067 mm) high, columns and posts.

**Exceptions:**

1. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the *occupant load* of the aggregate area of the enclosed space does not exceed 10.
2. A *mezzanine* having two or more *means of egress* is not required to be open to the room in which the *mezzanine* is located if at least one of the *means of egress* provides direct access to an *exit* from the *mezzanine* level.
3. *Mezzanines* or portions thereof are not required to be open to the room in which the *mezzanines* are located, provided that the aggregate floor area of the enclosed space does not exceed 10 percent of the allowable *mezzanine* area.
4. In industrial facilities, *mezzanines* used for control equipment are permitted to be glazed on all sides.

5. In occupancies other than Groups H and I, that are no more than two *stories* above *grade plane* and equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, a *mezzanine* having two or more *means of egress* shall not be required to be open to the room in which the *mezzanine* is located.

\*\*\*

## SECTION 506

### BUILDING AREA MODIFICATIONS

\*\*\*

**506.4 Single occupancy buildings with more than one story.** The total allowable *building area* of a single occupancy building with more than one *story above grade plane* shall be determined in accordance with this section. The actual aggregate *building area* at all *stories* in the building shall not exceed the total allowable *building area*.

**Exception:** (~~(A single basement))~~ Basements need not be included in the total allowable *building area*, provided each such basement does not exceed the area permitted for a building with no more than one *story above grade plane*.

**506.4.1 Area determination.** The total allowable *building area* of a single occupancy building with more than one *story above grade plane* shall be determined by multiplying the allowable *building area per story* (*Aa*), as determined in Section 506.1, by the number of *stories above grade plane* as listed below:

1. For buildings with two *stories above grade plane*, multiply by 2;
2. For buildings with three or more *stories above grade plane*, multiply by 3; and

3. No *story* shall exceed the allowable *building area* per *story* (*A<sub>a</sub>*), as determined in Section 506.1, for the occupancies on that *story*.

**Exceptions:**

1. Unlimited area buildings in accordance with Section 507.
2. The maximum area of a building equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2 shall be determined by multiplying the allowable area per *story* (*A<sub>a</sub>*), as determined in Section 506.1, by the number of *stories above grade plane*.

**Note:** NFPA 13R sprinkler systems are limited to buildings of Group R up to and including four stories in height. See Section 903.3.1.2.

**506.5 Mixed occupancy area determination.** The total allowable *building area* for buildings containing mixed occupancies shall be determined in accordance with the applicable provisions of this section. (~~(A single basement)~~) Basements need not be included in the total allowable *building area*, provided each such basement does not exceed the area permitted for a building with no more than one *story above grade plane*.

**506.5.1 No more than one story above grade plane.** For buildings with no more than one *story above grade plane* and containing mixed occupancies, the total *building area* shall be determined in accordance with the applicable provisions of Section 508.1.

**506.5.2 More than one story above grade plane.** For buildings with more than one *story above grade plane* and containing mixed occupancies, each *story* shall individually comply with the applicable requirements of Section 508.1. For buildings with more than three *stories above grade plane*, the total *building area* shall be such that the aggregate sum of the ratios of the actual area

of each *story* divided by the allowable area of such *stories* based on the applicable provisions of Section 508.1 shall not exceed 3.

## SECTION 508

### MIXED USE AND OCCUPANCY

**508.1 General.** Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group or use, the building or portion thereof shall comply with Section 508.2, and with the applicable provisions of Section ~~((508.2,))~~ 508.3 or 508.4 or a combination of these sections.

#### **Exceptions:**

1. Occupancies separated in accordance with Section 509.
2. Where required by Table 415.3.2, areas of Group H-1, H-2 and H-3 occupancies shall be located in a separate and detached building or structure.
3. Uses within live/work units, complying with Section 419, are not considered separate occupancies.
- [W] 4. Offices, mercantile, food preparation establishments for off-site consumption, personal care salons or similar uses in Group R dwelling units, which are conducted primarily by the occupants of a dwelling unit and are secondary to the use of the unit for dwelling purposes, and which do not exceed 500 square feet (46.4 m<sup>2</sup>) are not considered a separate occupancy.

**508.2 Accessory occupancies and incidental uses.** Accessory occupancies are those occupancies that are ancillary to the main occupancy of the building or portion thereof. Accessory occupancies shall comply with the provisions of Sections 508.2.1 through

1 ~~((508.2.5.3))~~ 508.2.4. Incidental uses are those listed in Table 508.2.5. Incidental uses shall  
2 comply with Sections 508.2.5.through 508.2.5.3.

3 **508.2.1 Area limitations.** Aggregate accessory occupancies shall not occupy more than 10  
4 percent of the *building area* of the *story* in which they are located and shall not exceed the  
5 tabular values in Table 503, without *building area* increases in accordance with Section 506 for  
6 such accessory occupancies.

7  
8 **508.2.2 Occupancy classification.** Accessory occupancies shall be individually classified in  
9 accordance with Section 302.1. The requirements of this code shall apply to each portion of the  
10 building based on the occupancy classification of that space.

11  
12 **508.2.3 Allowable building area and height.** The allowable *building area and height* of the  
13 building shall be based on the allowable *building area and height* for the main occupancy in  
14 accordance with Section 503.1. The height of each accessory occupancy shall not exceed the  
15 tabular values in Table 503, without increases in accordance with Section 504 for such accessory  
16 occupancies. The *building area* of the accessory occupancies shall be in accordance with Section  
17 508.2.1.  
18

19 **508.2.4 Separation of occupancies.** No separation is required between accessory occupancies  
20 and the main occupancy.

21 **Exceptions:**

22  
23 1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in  
24 accordance with Section 508.4.

25 2. ~~((Incidental accessory occupancies required to be separated or protected by Section 508.2.5.~~  
26

3.)) Group I-1, R-1, R-2 and R-3 *dwelling units* and *sleeping units* shall be separated from other *dwelling* or *sleeping units* and from accessory occupancies contiguous to them in accordance with the requirements of Section 420.

**508.2.5 Separation of incidental ((~~accessory occupancies~~)) uses.** The incidental ((~~accessory occupancies~~)) uses listed in Table 508.2.5 that occupy 10 percent or less of the building area of the story in which they are located shall be separated from the remainder of the building or equipped with an automatic fire-extinguishing system, or both, in accordance with Table 508.2.5. Incidental uses that occupy more than 10 percent of the building area of the story in which they are located shall comply with either Table 508.2.5 or Section 508.4, whichever requires a greater separation.

**Exception:** Incidental ((~~accessory occupancies~~)) uses within and serving a *dwelling unit* are not required to comply with this section.

**508.2.5.1 Fire-resistance-rated separation.** Where Table 508.2.5 specifies a fire-resistance-rated separation, the incidental use ((~~accessory occupancies~~)) shall be separated from the remainder of the *building* by a *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 712, or both. Construction supporting 1-hour fire-resistance-rated *fire barriers* or *horizontal assemblies* used for incidental use ((~~accessory occupancy~~)) separations in buildings of Type IIB, IIIB and VB construction are not required to be fire-resistance rated unless required by other sections of this code.

**508.2.5.2 Nonfire-resistance-rate separation and protection.** Where Table 508.2.5 permits an automatic fire-extinguishing system without a *fire barrier*, the incidental ((~~accessory~~

~~occupancies~~) use shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor assembly below to the underside of the ceiling that is a component of a fire-resistance-rated floor assembly or roof assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.8.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80. Walls surrounding the incidental ~~((accessory occupancy))~~ use shall not have air transfer openings unless provided with smoke dampers in accordance with Section 711.7.

**508.2.5.3 Extent of sprinkler ((P))protection.** Except as specified in Table 508.2.5 for certain incidental ~~((accessory occupancies))~~ uses, where an automatic fire-extinguishing system or an *automatic sprinkler system* is provided in accordance with Table 508.2.5, only the space occupied by the incidental ~~((accessory occupancy))~~ use need be equipped with such a system.

**TABLE 508.2.5**

**INCIDENTAL USES ~~((ACCESSORY OCCUPANCIES))~~**

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic fire-extinguishing system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic fire-extinguishing system
Refrigerant machinery room	1 hour or provide automatic sprinkler system

1	Hydrogen cutoff rooms, not classified as Group	1 hour in Group B, F, M, S and U occupancies;	
2	H	2 hours in Group A, E, I and R occupancies.	
3	Incinerator rooms	2 hours and automatic sprinkler system	
4	Paint shops, not classified as Group H, located	2 hours; or 1 hour and provide automatic fire-	
5	in occupancies other than Group F	extinguishing system	
6	Laboratories and vocational shops, not classified		
7	as Group H, located in a Group E or I-2	1 hour or provide automatic fire-extinguishing	
8	occupancy	system	
9			
10		1 hour or provide automatic fire-extinguishing	
11	Laundry rooms over 100 square feet	system	
12			
13	Group I-3 cells equipped with padded surfaces	1 hour	
14	Group I-2 waste and linen collection rooms	1 hour	
15			
16	Waste and linen collection rooms over 100	1 hour or provide automatic fire-extinguishing	
17	square feet	system	
18	Stationary storage battery systems having a		
19	liquid electrolyte capacity of more than 50		
20	gallons, or a lithium-ion capacity of 1,000		
21	pounds used for facility standby power,		
22	emergency power or uninterrupted power	1 hour in Group B, F, M, S and U occupancies;	
23	supplies	2 hours in Group A, E, I and R occupancies.	
24			
25	Rooms containing fire pumps in nonhigh-rise	2 hours; or 1 hour and provide automatic	
26			



1	buildings	sprinkler system throughout the building
2	Rooms containing fire pumps in high-rise	
3	buildings	2 hours
4		<u>1 hour or as required for elevator hoistway,</u>
5		<u>whichever is greater. Automatic-closing doors</u>
6		<u>are not permitted.</u>
7	<u>Elevator machine rooms</u>	

8 For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit  
 9 (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L.

10 **508.4 Separated occupancies.** Buildings or portions of buildings that comply with the  
 11 provisions of this section shall be considered as separated occupancies.

12 **508.4.1 Occupancy classification.** Separated occupancies shall be individually classified in  
 13 accordance with Section 302.1. Each separated space shall comply with this code based on the  
 14 occupancy classification of that portion of the building.

15 **508.4.2 Allowable building area.** In each *story*, the *building area* shall be such that the sum of  
 16 the ratios of the actual *building area* of each separated occupancy divided by the allowable  
 17 *building area* of each separated occupancy shall not exceed 1.

18 **508.4.3 Allowable height.** Each separated occupancy shall comply with the *building height*  
 19 limitations based on the type of construction of the building in accordance with Section 503.1.

20 **Exception:** Special provisions permitted by Section 509.

21 **508.4.4 Separation.** Individual occupancies shall be separated from adjacent occupancies in  
 22 accordance with Table 508.4.

**508.4.4.1 Construction.** Required separations shall be fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both, so as to completely separate adjacent occupancies.

**Exceptions:**

1. No separation is required between Group A-2 or A-3 and Groups B or M occupancies when both are protected by an automatic sprinkler system.

2. Subject to the approval of the building official, unprotected openings are permitted in separations between parking areas and enclosed portions of buildings such as entry lobbies and similar areas provided:

2.1. The floors of the enclosed building with unprotected openings are protected by an automatic sprinkler system;

2.2. The openings are glazed with either tempered or laminated glazing materials;

2.3. When required by the building official, the glazing is protected on the parking side with a sprinkler system designed to wet the entire glazed surface; and

2.4. The parking areas are used primarily for passenger loading and unloading and vehicle drive-through uses.

**TABLE 508.4**

**REQUIRED SEPARATION OF OCCUPANCIES (HOURS)**

Occupancy	A <sup>d</sup> , E		I-1, I-3, I-4		I-2		R		F-2, S-2 <sup>b</sup> , U		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS

A <sup>d</sup> , E	N	N	1	2	2	NP	1	2	N	1	1	2	NP	NP	3	4	2	3 <sup>a</sup>	
I-1, I-3, I-4	-	-	N	N	2	NP	1	NP	1	2	1	2	NP	NP	3	NP	2	NP	
I-2	-	-	-	-	N	N	2	NP	2	NP	2	NP	NP	NP	3	NP	2	NP	
R	-	-	-	-	-	-	N	N	1 <sup>c</sup>	2 <sup>c</sup>	1	2	NP	NP	3	NP	2	NP	
<u>F-1</u> , F-2, <u>S-1</u> , S-2 <sup>b</sup> , U	-	-	-	-	-	-	-	-	N	N	1	2	NP	NP	3	4	2	3 <sup>a</sup>	
B, (( <del>F-1</del> )) M, (( <del>S-1</del> ))	-	-	-	-	-	-	-	-	-	-	(( <del>N</del> <del>N</del> ))	NP	NP	NP	NP	2	3	1	2 <sup>a</sup>
H-1	-	-	-	-	-	-	-	-	-	-	-	-	N	NP	NP	NP	NP	NP	NP
H-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	NP	1	NP	NP
H-3, H-4, H-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 <sup>c,f</sup>	NP	NP

For SI: 1 square foot = 0.0929 m2.

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

N = No separation requirement.

NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.5.2.

b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but to not less than 1 hour.

c. See Section 406.1.4.

d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

e. Separation is not required between occupancies of the same classification.

f. For H-5 occupancies, see Section 415.8.2.2.

## SECTION 509

### SPECIAL PROVISIONS

**509.1 General.** The provisions in this section shall permit the use of special conditions that are exempt from, or modify, the specific requirements of this chapter regarding the allowable heights and areas of buildings based on the occupancy classification and type of construction, provided the special condition complies with the provisions specified in this section for such condition and other applicable requirements of this code. The provisions of Sections 509.2 through 509.8 are to be considered independent and separate from each other.

**Interpretation I509:** Sections 509.2 through 509.8 are not permitted to be used in combination with each other.

**509.2 Horizontal building separation allowance.** A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a minimum 3-hour *fire-resistance rating*.

2. The building below the *horizontal assembly* is no more than ~~one~~ two ~~story~~ stories above grade plane.

3. The building below the *horizontal assembly* is of Type IA construction.

4. Shaft, *stairway*, ramp and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 715.4.

**Exception:** Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire-resistance rating* with opening protectives in accordance with Section 715.4, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

1. The building above the *horizontal assembly* is not required to be of Type I construction;

2. The enclosure connects less than four *stories*; and

3. The enclosure opening protectives above the *horizontal assembly* have a minimum 1-hour *fire protection rating*.

5. Stairways permitted to be constructed of wood above the horizontal assembly are also permitted to be constructed of wood below the horizontal assembly. See Section 1002 for the definition of stairway.

1 ~~((5. The building or buildings above the *horizontal assembly* shall be permitted to have multiple~~  
2 ~~Group A occupancy uses, each with an *occupant load* of less than 300, or Group B, M, R or S~~  
3 ~~occupancies.))~~

4 6. The buildings ~~((below the *horizontal assembly* shall be protected throughout by an *approved*~~  
5 ~~*automatic sprinkler system* in accordance with Section 903.3.1.1, and))~~ shall be permitted to be  
6  
7 any of the following occupancies:

8 6.1. Group S-2 parking garage used for the parking and storage of private motor vehicles;

9 6.2. Multiple Group A, each with an *occupant load* of less than 300;

10 6.3. Group B;

11 6.4. Group M;

12 6.5. Group R; and

13 6.6. Uses incidental to the operation of the building (including entry lobbies, mechanical rooms,  
14 storage areas and similar uses).

15 7. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 503  
16  
17 for the building having the smaller allowable height as measured from the *grade plane*.

18 8. The height of the entire structure shall not exceed seven stories above grade plane.

19 9. All portions of the buildings above and below the three-hour horizontal assembly shall be  
20 protected throughout with an automatic sprinkler system that complies with Section 903.3.1.1 in  
21 buildings with two stories below the horizontal assembly.

22 10. Occupied areas shall be not more than 75 feet above the lowest level of fire department  
23 vehicle access.

**Exception:** Roof decks with an occupant load of less than ten are permitted to be located more than 75 feet above the lowest level of fire department vehicle access.

11. Where the portion of the building below the three-hour horizontal assembly has two stories above grade plane, exit enclosures shall be pressurized in accordance with Section 909.21 for low-rise stairways.

\*\*\*

**509.4 Parking beneath Group R.** Where a maximum one *story above grade plane* Group S-2 parking garage, enclosed or open, or combination thereof, of Type I construction or open of Type IV construction, with grade entrance, is provided under a building of Group R, the number of stories to be used in determining the minimum type of construction shall be measured from the floor above such a parking area. The floor assembly between the parking garage and the Group R above shall comply with the type of construction required for the parking garage and shall also provide a *fire-resistance rating* not less than the mixed occupancy separation required in Section 508.4. For purposes of this Section, the Group R occupancy shall be no more than four stories in height.

\*\*\*

Section 7. The following sections of Chapter 6 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 6

### TYPES OF CONSTRUCTION

\*\*\*

**TABLE 601**  
**FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS**  
**(hours)**

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A <sup>d</sup>	B	A <sup>d</sup>	B	HT	A <sup>d</sup>	B
Primary structural frame <sup>g</sup> (see Section 202)	3 <sup>a</sup>	2 <sup>a</sup>	1	0	1	0	HT	1	0
Bearing walls									
Exterior <sup>f, g</sup>	3	2	1	0	2	2	2	1	0
Interior	3 <sup>a</sup>	2 <sup>a</sup>	1	0	1	0	1/HT	1	0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior <sup>e</sup>	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and <u>associated</u> secondary	2	2	1	0	1	0	HT	1	0



members (see Section 202)									
Roof construction and <u>associated</u> secondary members (see Section 202)	1 <sup>1/2</sup> <sup>b</sup>	1 <sup>b, c</sup>	1 <sup>b, c</sup>	0 <sup>c</sup>	1 <sup>b, c</sup>	0	HT	1 <sup>b, c</sup>	0

For SI: 1 foot = 304.8 mm.

- a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
- b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
- c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
- d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section

504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.

Footnote d is not applicable to buildings constructed according to Section 10221.2.1 Item 4.

e. Not less than the fire-resistance rating required by other sections of this code.

f. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

g. Not less than the fire-resistance rating as referenced in Section 704.10

Note: See Sections 1009.6 and 603.1 item 26 for stairway construction.

\*\*\*

## SECTION 602

### CONSTRUCTION CLASSIFICATION

\*\*\*

**602.3 Type III.** Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.

**Interpretation I602.3:** Type IIIA buildings are permitted to include exposed heavy-timber construction for columns, beams, girders, arches, trusses, floors and roof decks except for fire-resistive construction required by Sections 509 and 708 and Chapter 10.

\*\*\*

**602.5 Type V.** Type V construction is that type of construction in which the structural elements, *exterior walls* and interior walls are of any materials permitted by this code.

**Interpretation I602.5:** Type VA buildings are permitted to include exposed heavy-timber construction for columns, beams, girders, arches, trusses, floors and roof decks except for fire-resistive construction required by Sections 509 and 708 and Chapter 10.

\*\*\*

## SECTION 603

### COMBUSTIBLE MATERIAL IN TYPE I AND II CONSTRUCTION

**603.1 Allowable materials.** Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.

#### **Exceptions:**

1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.
2. Foam plastics in accordance with Chapter 26.
3. Roof coverings that have an A, B or C classification.
4. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
5. Millwork such as doors, door frames, window sashes and frames.
6. *Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.

- 1 7. *Trim* installed in accordance with Section 806.
- 2 8. Where not installed over 15 feet (4572 mm) above grade, show windows, nailing or furring
- 3 strips and wooden bulkheads below show windows, including their frames, aprons and show
- 4 cases.
- 5 9. Finish flooring installed in accordance with Section 805.
- 6 10. Partitions dividing portions of stores, offices or similar places occupied by one tenant only
- 7 and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be
- 8 permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated
- 9 construction or of wood panels or similar light construction up to 6 feet (1829 mm) in
- 10 height.
- 11 11. Stages and platforms constructed in accordance with Sections 410.3 and 410.4,
- 12 respectively.
- 13 12. Combustible *exterior wall coverings*, balconies and similar projections and bay or oriel
- 14 windows in accordance with Chapter 14.
- 15 13. Blocking such as for handrails, millwork, cabinets and window and door frames.
- 16 14. Light-transmitting plastics as permitted by Chapter 26.
- 17 15. Mastics and caulking materials applied to provide flexible seals between components of
- 18 *exterior wall* construction.
- 19 16. Exterior plastic veneer installed in accordance with Section 2605.2.
- 20 17. Nailing or furring strips as permitted by Section 803.4.
- 21 18. Heavy timber as permitted by Note c to Table 601 and Sections 602.4.7 and 1406.3.
- 22
- 23
- 24
- 25
- 26
- 27
- 28

- 1 19. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
- 2 20. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings,
- 3 determined on the basis of *fire-resistance* tests in accordance with Section 703.2 and
- 4 installed in accordance with Sections 1704.12 and 1704.13, respectively.
- 5 21. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with
- 6 Section 713.
- 7 22. Materials used to protect joints in fire-resistance-rated assemblies in accordance with
- 8 Section 714.
- 9 23. Materials allowed in the concealed spaces of buildings of Types I and II construction in
- 10 accordance with Section 717.5.
- 11 24. Materials exposed within plenums complying with Section 602 of the *International*
- 12 *Mechanical Code*.
- 13 25. *Fire-retardant-treated wood* shall be permitted in:
- 14 25.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
- 15 25.2. Nonbearing *exterior walls* where no fire rating is required.
- 16 25.3. Roof construction, including girders, trusses, framing and decking.
- 17 **Exception:** In buildings of Type IA construction exceeding two *stories above grade*
- 18 *plane*, *fire-retardant-treated wood* is not permitted in roof construction when the
- 19 vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
- 20
- 21
- 22
- 23
- 24
- 25
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26. Stairways within individual dwelling units and stairways serving a single tenant space are permitted to be of fire-retardant-treated wood or heavy-timber construction. In other than Group R occupancies, such stairways shall not serve as a required means of egress.

27. Aluminum is permitted as follows:

27.1 Where combustible materials, including fire retardant treated wood, are allowed by the code;

27.2 For structural members supporting less than 500 square feet that do not have direct connections to columns and bracing members designed to carry gravity loads;

27.3 In curtain walls approved or listed for use in non-combustible construction; and

27.4 Unprotected aluminum frames for awnings in accordance with Section 3105.5.

28. Stairways complying with Section 509.2, item 5.

**603.1.1 Ducts.** The use of nonmetallic ducts shall be permitted when installed in accordance with the limitations of the *International Mechanical Code*.

**603.1.2 Piping.** The use of combustible piping materials shall be permitted when installed in accordance with the limitations of the *International Mechanical Code* and the ((*International*)) *Uniform Plumbing Code*.

**603.1.3 Electrical.** The use of electrical wiring methods with combustible insulation, tubing, raceways and related components shall be permitted when installed in accordance with the limitations of this code.

Section 8. The following sections of Chapter 7 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 7

### FIRE AND SMOKE PROTECTION FEATURES

#### SECTION 701

##### GENERAL

**701.1 Scope.** The provisions of this chapter shall govern the materials, systems and assemblies used for structural *fire resistance* and fire-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.

**Exception:** Carports are not required to comply with this chapter if they satisfy all the following criteria:

1. Accessory to Group R-3 occupancies.
2. Used to shelter only vehicles, trailers or vessels.
3. Constructed of metal, plastic or fabric.
4. No more than 3 pounds per square foot in total weight.
5. No more than 300 square feet covered area.

#### SECTION 702

##### DEFINITIONS

**702.1 Definitions.** The following words and terms shall, for the purposes of this chapter, and as used elsewhere in this code, have the meanings shown herein.

**ANNULAR SPACE.** The opening around the penetrating item.

**BUILDING ELEMENT.** A fundamental component of building construction, listed in Table 601, which may or may not be of fire-resistance-rated construction and is constructed of materials based on the building type of construction.

**CEILING RADIATION DAMPER.** A *listed* device installed in a ceiling membrane of a fire-resistance-rated floor/ceiling or roof/ceiling assembly to limit automatically the radiative heat transfer through an air inlet/outlet opening.

**COMBINATION FIRE/SMOKE DAMPER.** A *listed* device installed in ducts and air transfer openings designed to close automatically upon the detection of heat and resist the passage of flame and smoke. The device is installed to operate automatically, controlled by a smoke detection system, and where required, is capable of being positioned from a fire command center.

**DAMPER.** See “*Ceiling radiation damper*,” “*Combination fire/smoke damper*,” “*Fire damper*” and “*Smoke damper*.”

**DRAFTSTOP.** A material, device or construction installed to restrict the movement of air within open spaces of concealed areas of building components such as crawl spaces, floor/ceiling assemblies, roof/ceiling assemblies and *attics*.

**F RATING.** The time period that the *through-penetration firestop system* limits the spread of fire through the penetration when tested in accordance with ASTM E 814 or UL 1479.

**FIRE BARRIER.** A fire-resistance-rated wall assembly of materials designed to restrict the spread of fire in which continuity is maintained.

**FIRE DAMPER.** A *listed* device installed in ducts and air transfer openings designed to close automatically upon detection of heat and resist the passage of flame. *Fire dampers* are classified



1 for use in either static systems that will automatically shut down in the event of a fire, or in  
2 dynamic systems that continue to operate during a fire. A dynamic *fire damper* is tested and rated  
3 for closure under elevated temperature airflow.

4 **FIRE DOOR.** The door component of a *fire door* assembly.

5 **FIRE DOOR ASSEMBLY.** Any combination of a *fire door*, frame, hardware and other  
6 accessories that together provide a specific degree of fire protection to the opening.  
7

8 **FIRE PARTITION.** A vertical assembly of materials designed to restrict the spread of fire in  
9 which openings are protected.

10 **FIRE PROTECTION RATING.** The period of time that an opening protective will maintain  
11 the ability to confine a fire as determined by tests prescribed in Section 715. Ratings are stated in  
12 hours or minutes.  
13

14 **FIRE RESISTANCE.** That property of materials or their assemblies that prevents or retards the  
15 passage of excessive heat, hot gases or flames under conditions of use.  
16

17 **FIRE-RESISTANCE RATING.** The period of time a building element, component or assembly  
18 maintains the ability to confine a fire, continues to perform a given structural function, or both, as  
19 determined by the tests, or the methods based on tests, prescribed in Section 703.

20 **FIRE-RESISTANT JOINT SYSTEM.** An assemblage of specific materials or products that are  
21 designed, tested and fire-resistance rated in accordance with either ASTM E1966 or UL 2079 to  
22 resist for a prescribed period of time the passage of fire through joints made in or between fire-  
23 resistance-rated assemblies.  
24  
25  
26  
27  
28

**FIRE SEPARATION DISTANCE.** The distance measured from the building face to one of the following:

1. The closest interior *lot line*;
2. To the ~~((centerline))~~ opposite side of a street, an alley or public way; or
3. To an imaginary line between two buildings on the property.

The distance shall be measured at right angles from the face of the wall.

**FIRE WALL.** A fire-resistance-rated wall having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof~~((, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall))~~.

**FIRE WINDOW ASSEMBLY.** A window constructed and glazed to give protection against the passage of fire.

**FIREBLOCKING.** Building materials or materials for use as fireblocking, installed to resist the free passage of flame to other areas of the building through concealed spaces.

**FLOOR FIRE DOOR ASSEMBLY.** A combination of a *fire door*, a frame, hardware and other accessories installed in a horizontal plane, which together provide a specific degree of fire protection to a through-opening in a fire-resistance-rated floor (see Section 712.8).

**HORIZONTAL ASSEMBLY.** A fire-resistance-rated floor or roof assembly of materials designed to restrict the spread of fire in which continuity is maintained.

1 **JOINT.** The linear opening in or between adjacent fire-resistance-rated assemblies that is  
2 designed to allow independent movement of the building in any plane caused by thermal,  
3 seismic, wind or any other loading.

4 **MEMBRANE PENETRATION.** An opening made through one side (wall, floor or ceiling  
5 membrane) of an assembly.

6 **MEMBRANE-PENETRATION FIRESTOP.** A material, device or construction installed to  
7 resist for a prescribed time period the passage of flame and heat through openings in a protective  
8 membrane in order to accommodate cables, cable trays, conduit, tubing, pipes or similar items.

9 **MINERAL FIBER.** Insulation composed principally of fibers manufactured from rock, slag or  
10 glass, with or without binders.

11 **MINERAL WOOL.** Synthetic vitreous fiber insulation made by melting predominately igneous  
12 rock or furnace slag, and other inorganic materials, and then physically forming the melt into  
13 fibers.

14 **PENETRATION FIRESTOP.** A through-penetration firestop or a *membrane-penetration*  
15 *firestop*.

16 **SELF-CLOSING.** As applied to a *fire door* or other opening protective, means equipped with an  
17 device that will ensure closing after having been opened.

18 **SHAFT.** An enclosed space extending through one or more *stories* of a building, connecting  
19 vertical openings in successive floors, or floors and roof.

20 **SHAFT ENCLOSURE.** The walls or construction forming the boundaries of a shaft.

**SMOKE BARRIER.** A continuous membrane, either vertical or horizontal, such as a wall, floor or ceiling assembly, that is designed and constructed to restrict the movement of smoke.

**SMOKE COMPARTMENT.** A space within a building enclosed by *smoke barriers* on all sides, including the top and bottom.

**SMOKE DAMPER.** A *listed* device installed in ducts and air transfer openings designed to resist the passage of smoke. The device is installed to operate automatically, controlled by a smoke detection system, and where required, is capable of being positioned from a fire command center.

**SPLICE.** The result of a factory and/or field method of joining or connecting two or more lengths of a *fire-resistant joint system* into a continuous entity.

**T RATING.** The time period that the penetration firestop system, including the penetrating item, limits the maximum temperature rise to 325°F (163°C) above its initial temperature through the penetration on the nonfire side when tested in accordance with ASTM E 814 or UL 1479.

**THROUGH PENETRATION.** An opening that passes through an entire assembly.

**THROUGH-PENETRATION FIRESTOP SYSTEM.** An assemblage of specific materials or products that are designed, tested and fire-resistance rated to resist for a prescribed period of time the spread of fire *through penetrations*. The F and T rating criteria for penetration firestop systems shall be in accordance with ASTM E 814 or UL 1479. See definitions of “F rating” and “T rating.”

\*\*\*

**703.6 Marking and identification.** Fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling. Such identification (~~((shall))~~):

1. (~~((Be))~~) Is permitted to be located in accessible concealed floor, floor-ceiling or attic spaces;
2. (~~((Be))~~) Shall be repeated at intervals not exceeding 30 feet (914 mm) measured horizontally along the wall or partition; and
3. (~~((Include))~~) Shall include lettering not less than 0.5 inch (12.7 mm) in height, incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS," or other similar wording.

**Exception:** Walls in Group R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space.

\*\*\*

## SECTION 705

### EXTERIOR WALLS

\*\*\*

**705.2 Projections.** Cornices, eave overhangs, exterior balconies and similar projections extending beyond the *exterior wall* shall conform to the requirements of this section and Section 1406. Exterior egress balconies and *exterior exit stairways* shall also comply with Sections 1019 and 1026, respectively. Projections shall not extend beyond the distance determined by the following three methods, whichever (~~((results in the lesser projection))~~) is least restrictive:

1 1. A point one-third the distance from the exterior face of the wall to the *lot line* where  
2 protected openings or a combination of protected and unprotected openings are required in the  
3 *exterior wall*.

4 2. A point one-half the distance from the exterior face of the wall to the *lot line* where all  
5 openings in the *exterior wall* are permitted to be unprotected, or the building is equipped with a  
6 *water curtain and ((throughout))* with an *automatic sprinkler system* installed throughout under  
7 the provisions of Section 705.8.2.

8 3. More than 12 inches (305 mm) into areas where openings are prohibited.

9  
10 Buildings on the same lot and considered as portions of one building in accordance with  
11 Section 705.3 are not required to comply with this section.  
12

13 **Code Alternate CA705.2:** Balconies and decks constructed with grated metal decking that  
14 allows smoke and heat to ventilate are permitted to be considered projections and not floor  
15 area.

16 Sprinklers shall be provided on these balconies and decks that project more than two feet  
17 from the building.  
18

19 **Interpretation I705.2:** For purposes of Section 705.2, gutters 6 inches or less in width that are  
20 not an integral part of the structure are not considered projections on Group R-3 occupancies  
21 and on Group U accessory occupancies.  
22

23 **705.2.1 Type I and II construction.** Projections from walls of Type I or II construction shall be  
24 of noncombustible materials or combustible materials as allowed by Sections 1406.3 and 1406.4.  
25  
26  
27  
28

**705.2.2 Type III, IV or V construction.** Projections from walls of Type III, IV or V

construction shall be of any *approved* material.

Eave overhangs from walls of Types IIIA, IV or VA construction or from walls that are otherwise required to be of fire-resistance-rated construction shall be finished on the underside with at least 1/2-inch (13 mm) gypsum sheathing or equivalent or shall be heavy-timber construction conforming to Section 602.4. Vents are permitted to be installed if the vent openings are covered with corrosion-resistant metal mesh.

See Section 713.3.2 for allowable vent penetrations.

**705.2.3 Combustible projections.** Combustible projections located where openings are not permitted or where protection of openings is required shall be of at least 1-hour fire-resistance-rated construction, Type IV construction, *fire-retardant-treated wood* or as required by Section 1406.3.

**Exceptions:**

1. Type V construction shall be allowed for R-3 occupancies.
2. Eave overhangs are permitted to be of less than one-hour construction provided the underside is finished with at least 1/2-inch (13 mm) gypsum sheathing or equivalent.

\*\*\*

~~((705.6 Structural stability. The wall shall extend to the height required by Section 705.11 and shall have sufficient structural stability such that it will remain in place for the duration of time indicated by the required *fire-resistance rating*.)~~

\*\*\*

**705.8 Openings.** Openings in *exterior walls* shall comply with Sections 705.8.1 through 705.8.6.

**705.8.1 Allowable area of openings.** The maximum area of unprotected and protected openings permitted in an *exterior wall* in any *story* of a building shall not exceed the percentages specified in Table 705.8.

**Exceptions:**

1. In other than Group H occupancies, unlimited unprotected openings are permitted in the first *story* above grade plane either:

1.1. Where the wall faces a street and has a *fire separation distance* of more than ((15)) 30 feet (((4572)) 9144 mm); or

1.2. Where the wall faces an unoccupied space. The unoccupied space shall be on the same lot or dedicated for public use, shall not be less than 30 feet (9144 mm) in width and shall have access from a street by a posted fire lane in accordance with the *International Fire Code*.

2. Buildings whose exterior bearing walls, exterior nonbearing walls and exterior primary structural frame are not required to be fire-resistance rated shall be permitted to have unlimited unprotected openings.

**Interpretation I705.8:** For purposes of Section 705.8, where the fire separation distance on a lower floor is greater than the fire separation distance on the floor above, there are two options for wall and opening protection.

**Option 1:** The plane that projects vertically from the edge of the story, roof or deck above shall comply with the exterior wall and opening protection requirements. The portion of the plane where the wall is recessed is considered an opening.



**Option 2:** Recessed exterior walls shall comply with the wall fire rating and wall opening protection percentages as if the fire separation distance is equal to the story, roof or deck above.

See Figures I705.8a and I705.8b.

**Interpretation I705.8:**

Option 1. Exterior wall protection extends from A to B to C.

Option 2. Exterior wall protection extends from A to B to B1 to C1. Fire-resistance rating and opening protection comply with requirements for wall AB. The length of the wall segment B to B1 shall be included when calculating the percentage of openings allowed.

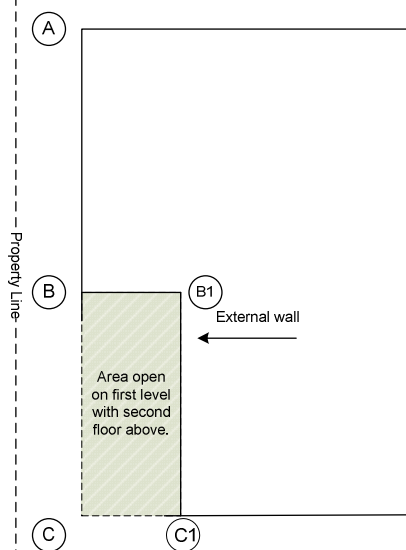
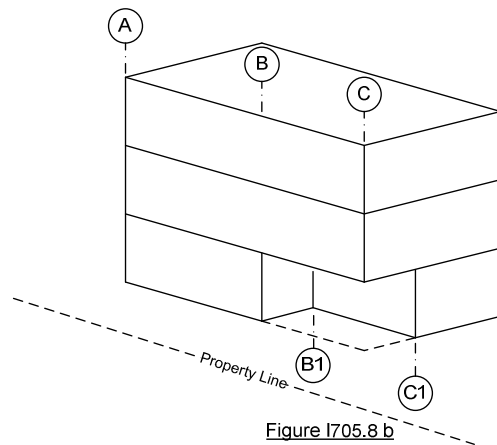


Figure I705.8a  
 Plan View

Note: Opening protection in wall C to C1 isn't considered in Figures I705.8a and I705.8b because it is perpendicular to the property line.



**705.8.2 Protected openings.** Where openings are required to be protected, *fire doors* and fire shutters shall comply with Section 715.4 and *fire window assemblies* shall comply with Section 715.5.

**Exception:** Opening protectives are not required where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 and the exterior openings are protected by a water curtain using automatic sprinklers *approved* for that use.

**705.8.3 Unprotected openings.** Where unprotected openings are permitted, windows and doors shall be constructed of any *approved* materials. Glazing shall conform to the requirements of Chapters 24 and 26.

\*\*\*

## SECTION 706

## FIRE WALLS

\*\*\*

1 ~~((706.2 Structural stability. Fire walls shall have sufficient structural stability under fire~~  
2 ~~conditions to allow collapse of construction on either side without collapse of the wall for the~~  
3 ~~duration of time indicated by the required fire resistance rating.))~~

4 \*\*\*

5 **706.5 Horizontal continuity.** *Fire walls* shall be continuous from *exterior wall* to *exterior wall*  
6 and shall extend at least 18 inches (457 mm) beyond the exterior surface of *exterior walls*.  
7

8 **Exceptions:**

9 1. *Fire walls* shall be permitted to terminate at the interior surface of combustible exterior  
10 sheathing or siding provided the *exterior wall* has a *fire-resistance rating* of at least 1 hour for a  
11 horizontal distance of at least 4 feet (1220 mm) on both sides of the *fire wall*. Openings within  
12 such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of  
13 not less than 3/4 hour.  
14

15 2. *Fire walls* shall be permitted to terminate at the interior surface of noncombustible exterior  
16 sheathing, exterior siding or other noncombustible exterior finishes provided the sheathing,  
17 siding, or other exterior noncombustible finish extends a horizontal distance of at least 4 feet  
18 (1220 mm) on both sides of the *fire wall*.  
19

20 3. *Fire walls* shall be permitted to terminate at the interior surface of noncombustible exterior  
21 sheathing where the building on each side of the *fire wall* is protected by an *automatic sprinkler*  
22 *system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.  
23

24 **706.5.1 Exterior walls.** Where the *fire wall* intersects *exterior walls*, the *fire-resistance rating*  
25 and opening protection of the *exterior walls* shall comply with one of the following:  
26

1. The *exterior walls* on both sides of the *fire wall* shall have a 1-hour *fire-resistance rating* with 3/4-hour protection where opening protection is required by Section 705.8. The *fire-resistance rating* of the *exterior wall* shall extend a minimum of 4 feet (1220 mm) on each side of the intersection of the *fire wall* to *exterior wall*. *Exterior wall* intersections at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad) do not need *exterior wall* protection.

2. Buildings or spaces on both sides of the intersecting *fire wall* shall assume to have an imaginary *lot line* at the *fire wall* and extending beyond the exterior of the *fire wall*. The location of the assumed line in relation to the *exterior walls* and the *fire wall* shall be such that the *exterior wall* and opening protection meet the requirements set forth in Sections 705.5 and 705.8. Such protection is not required for *exterior walls* terminating at *fire walls* that form an angle equal to or greater than 180 degrees (3.14 rad).

**706.5.2 Horizontal projecting elements.** *Fire walls* shall extend to the outer edge of horizontal projecting elements such as balconies, roof overhangs, canopies, ((~~marques~~)) and similar projections that are within 4 feet (1220 mm) of the *fire wall*.

**Exceptions:**

1. Horizontal projecting elements without concealed spaces, provided the *exterior wall* behind and below the projecting element has not less than 1-hour fire-resistance-rated construction for a distance not less than the depth of the projecting element on both sides of the *fire wall*. Openings within such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of not less than 3/4 hour.

2. Noncombustible horizontal projecting elements with concealed spaces, provided a minimum 1-hour fire-resistance-rated wall extends through the concealed space. The projecting element shall be separated from the building by a minimum of 1-hour fire-resistance-rated construction for a distance on each side of the *fire wall* equal to the depth of the projecting element. The wall is not required to extend under the projecting element where the building *exterior wall* is not less than 1-hour fire-resistance rated for a distance on each side of the *fire wall* equal to the depth of the projecting element. Openings within such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of not less than 3/4 hour.

3. For combustible horizontal projecting elements with concealed spaces, the *fire wall* need only extend through the concealed space to the outer edges of the projecting elements. The *exterior wall* behind and below the projecting element shall be of not less than 1-hour fire-resistance-rated construction for a distance not less than the depth of the projecting elements on both sides of the *fire wall*. Openings within such *exterior walls* shall be protected by opening protectives having a fire-protection rating of not less than 3/4 hour.

\*\*\*

## SECTION 707

### FIRE BARRIERS

\*\*\*

**707.3 Fire-resistance rating.** The *fire-resistance rating* of *fire barriers* shall comply with this section.

1 **707.3.1 Shaft enclosures.** The *fire-resistance rating* of the *fire barrier* separating building areas  
2 from a shaft shall comply with Section 708.4.

3 **707.3.2 Exit enclosures.** The *fire-resistance rating* of the *fire barrier* separating building areas  
4 from an *exit* shall comply with Section 1022.1.

5 **707.3.3 Exit passageway.** The *fire-resistance rating* of the *fire barrier* separating building areas  
6 from an *exit* passageway shall comply with Section 1023.3.

7 **707.3.4 Horizontal exit.** The *fire-resistance rating* of the separation between building areas  
8 connected by a horizontal *exit* shall comply with Section 1025.1.

9 **707.3.5 Atriums.** The *fire-resistance rating* of the *fire barrier* separating atriums shall comply  
10 with Section 404.6.

11 **707.3.6 Incidental ((~~accessory occupancies~~)) uses.** The *fire barrier* separating incidental  
12 ((~~accessory occupancies~~)) uses from other spaces in the building shall have a *fire-resistance*  
13 *rating* of not less than that indicated in Table 508.2.5.

14 **707.3.7 Control areas.** *Fire barriers* separating *control areas* shall have a *fire-resistance rating*  
15 of not less than that required in Section 414.2.4.

16 **707.3.8 Separated occupancies.** Where the provisions of Section 508.4 are applicable, the *fire*  
17 *barrier* separating mixed occupancies shall have a *fire-resistance rating* of not less than that  
18 indicated in Table 508.4 based on the occupancies being separated.

19 **707.3.9 Fire areas.** The *fire barriers* or *horizontal assemblies*, or both, separating a single  
20 occupancy into different *fire areas* shall have a *fire-resistance rating* of not less than that  
21 indicated in Table 707.3.9. The *fire barriers* or *horizontal assemblies*, or both, separating *fire*  
22

1 *areas* of mixed occupancies shall have a *fire-resistance rating* of not less than the highest value  
2 indicated in Table 707.3.9 for the occupancies under consideration.

3 **707.3.10 Elevator machine rooms.** The fire-resistance rating of fire barriers enclosing elevator  
4 equipment and machine rooms shall be not less than that required by Table 508.2.5 and Section  
5 3020.4.

6 \*\*\*

## 7 SECTION 708

### 8 SHAFT ENCLOSURES

9 \*\*\*

10 **708.2 Shaft enclosure required.** Openings through a floor/ceiling assembly shall be protected  
11 by a shaft enclosure complying with this section.

#### 12 Exceptions:

13 1. A shaft enclosure is not required for openings totally within an individual residential  
14 *dwelling unit* and connecting four *stories* or less.

15 2. A shaft enclosure is not required in a building equipped throughout with an *automatic*  
16 *sprinkler system* in accordance with Section 903.3.1.1 for an escalator opening or  
17 *stairway* that is not a portion of the *means of egress* protected according to Item 2.1 or  
18 2.2.

19 2.1. Where the area of the floor opening between *stories* does not exceed twice the  
20 horizontal projected area of the escalator or *stairway* and the opening is protected by a  
21 draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than  
22

Groups B and M, this application is limited to openings that do not connect more than four *stories*.

2.2. Where the opening is protected by *approved* power-operated automatic shutters at every penetrated floor. The shutters shall be of noncombustible construction and have a *fire-resistance rating* of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon the actuation of a smoke detector installed in accordance with Section 907.3 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute (152.4 mm/s) and shall be equipped with a sensitive leading edge to arrest its progress where in contact with any obstacle, and to continue its progress on release therefrom.

**Note:** NFPA 13 requires draft curtains to be at least 18 inches (457 mm) deep, and to be of noncombustible or limited-combustible material.

3. A shaft enclosure is not required for penetrations by pipe, tube, conduit, wire, cable and vents protected in accordance with Section 713.4.

4. A shaft enclosure is not required for penetrations by ducts protected in accordance with Section 716.6. Grease ducts shall be protected in accordance with the *International Mechanical Code*.

5. In other than Group H occupancies, a shaft enclosure is not required for floor openings complying with the provisions for atriums in Section 404.



1 6. A shaft enclosure is not required for *approved* masonry chimneys where *annular space* is  
2 fireblocked at each floor level in accordance with Section 717.2.5.

3 7. In other than Groups I-2 and I-3, a shaft enclosure is not required for a floor opening or an  
4 air transfer opening that complies with the following:

5 7.1. Does not connect more than two *stories*.

6 7.2. Is not part of the required *means of egress* system.

7 7.3. Is not concealed within the construction of a wall or a floor/ceiling assembly.

8 7.4. Is not open to a *corridor* in Group I and R occupancies.

9 7.5. Is not open to a *corridor* on nonsprinklered floors in any occupancy.

10 7.6. Is separated from floor openings and air transfer openings serving other floors by  
11 construction conforming to required shaft enclosures.

12 7.7. Is limited to the same smoke compartment.

13 8. A shaft enclosure is not required for openings through floors and for automobile ramps in  
14 ~~((open and enclosed))~~ parking garages constructed in accordance with Sections 406.3 and  
15 406.4~~((, respectively))~~.

16 9. A shaft enclosure is not required for floor openings between a *mezzanine* and the floor  
17 below.

18 10. A shaft enclosure is not required for joints protected by a *fire-resistant joint system* in  
19 accordance with Section 714.

20 11. A shaft enclosure shall not be required for floor openings created by unenclosed *stairs* or  
21 ramps in accordance with Exception 3 or 4 in Section 1016.1.

12. Floor openings protected by floor *fire doors* in accordance with Section 712.8.

13. In Group I-3 occupancies, a shaft enclosure is not required for floor openings in accordance with Section 408.5.

14. A fire-resistance-rated shaft enclosure is not required for elevator hoistways in ~~((open or enclosed))~~ parking garages that serve only the parking garage.

**Note:** When exception 14 is applied, the hoistway will be required to be enclosed, but it is not required to be fire-resistance rated. See Section 3020.1.

15. In ~~((open or enclosed))~~ parking garages a shaft enclosure is not required to enclose mechanical exhaust or supply duct systems when such duct system is contained within and serves only the parking garage.

16. Penetrations of floors inside a wall cavity by gas vents and piping in buildings of Types III, IV, and V construction need not be protected.

17. Where permitted by other sections of this code.

**708.3 Materials.** The shaft enclosure shall be of materials permitted by the building type of construction.

**708.4 Fire-resistance rating.** Shaft enclosures shall have a *fire-resistance rating* of not less than 2 hours where connecting more than four *stories* ~~((or more))~~, and not less than 1 hour where connecting ~~((less than))~~ four and fewer *stories*. The number of *stories* connected by the shaft enclosure shall include any basements but not any *mezzanines*. Shaft enclosures shall have a *fire-resistance rating* not less than the floor assembly penetrated, but need not exceed 2 hours. Shaft enclosures shall meet the requirements of Section 703.2.1.

\*\*\*

**708.8 Penetrations.** Penetrations in a shaft enclosure shall be protected in accordance with Section 713 as required for *fire barriers*.

**708.8.1 Prohibited penetrations.** Penetrations other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures. See Section 3022 for installation of pipes and ducts in elevator hoistways.

\*\*\*

**708.14 Elevator, dumbwaiter and other hoistways.** Elevator, dumbwaiter and other hoistway enclosures shall be constructed in accordance with ((~~Section 708 and~~)) Chapter 30.

**708.14.1 Elevator lobby.** An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three *stories*. The lobby enclosure shall separate the elevator shaft enclosure doors from each floor by *fire partitions*. In addition to the requirements in Section 709 for *fire partitions*, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 715.4.3 as required for *corridor* walls and shall be automatic-closing by actuation of a smoke detector in accordance with Section 715.4.8.3.

((~~penetrations~~)) Penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for *corridors* in accordance with Section 716.5.4.1. Elevator lobbies shall have at least one *means of egress* complying with Chapter 10 and other provisions within this code.

**Exceptions:**

- 1 1. Enclosed elevator lobbies are not required at the street floor, provided the entire street  
2 floor is equipped with an *automatic sprinkler system* in accordance with Section  
3 903.3.1.1.
- 4 2. Elevators not required to be ~~((located in a shaft))~~ enclosed in accordance with Section  
5 ~~((708.2))~~ 3020.1 are not required to have enclosed elevator lobbies.
- 6 3. Enclosed elevator lobbies are not required where additional doors are provided at the  
7 hoistway opening ~~((in accordance with Section 3002.6))~~ at the point of access to the  
8 elevator car. Such doors shall be tested in accordance with UL 1784 without an artificial  
9 bottom seal. The doors shall have a fire protection rating of at least 20 minutes, and shall  
10 be tight-fitting smoke- and draft-control assemblies complying with Section 715.4.3.  
11 They shall be maintained automatic closing by actuation of a smoke detector in  
12 accordance with Section 715.4.8.3. Doors that latch shall be provided with panic  
13 hardware, openable from inside the elevator car. The doors shall be readily openable  
14 from the car side without a key, tool, or special knowledge or effort.  
15  
16  
17  
18 4. Enclosed elevator lobbies are not required where the building is protected by an  
19 *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.  
20 This exception shall not apply to the following:  
21 4.1. Group I-2 occupancies;  
22 4.2. Group I-3 occupancies; and  
23 4.3. High-rise buildings.  
24  
25  
26  
27  
28

1 5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby  
2 at each floor where the building is equipped throughout with an automatic sprinkler  
3 system installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition to the  
4 requirements in Section 711 for smoke partitions, doors protecting openings in the smoke  
5 partitions shall also comply with Sections 711.5.2, 711.5.3, and 715.4.8 and duct  
6 penetrations of the smoke partitions shall be protected as required for corridors in  
7 accordance with Section 716.5.4.1.  
8

9 6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in  
10 accordance with Section 708.14.2.  
11

12 7. Enclosed elevator lobbies are not required where the elevator serves only open parking  
13 garages in accordance with Section 406.3.

14 **708.14.1.1 Areas of refuge.** Areas of refuge shall be provided as required in Section 1007.

15 **708.14.2 ((Enclosed elevator lobby)) Elevator hoistway pressurization.** Where elevator  
16 hoistway pressurization is provided in lieu of required enclosed elevator lobbies, the  
17 pressurization system shall comply with this section.  
18

19 **708.14.2.1 Pressurization requirements.** Elevator hoistways shall be pressurized to  
20 maintain a minimum positive pressure of 0.10 inches of water (25 Pa) and a maximum  
21 positive pressure of 0.25 inches of water (67 Pa) with respect to adjacent occupied space on  
22 all floors. This pressure shall be measured at the midpoint of each hoistway door, with all  
23 elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all  
24 other hoistway doors closed. The opening and closing of hoistway doors at each level must be  
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demonstrated during this test. The pressure differential shall be measured between the hoistway and the adjacent area. In residential buildings, the pressure differential is permitted to be measured between the hoistway and the dwelling units.

**Exceptions:**

1. The pressure differential is permitted to be measured relative to outdoor atmosphere on floors other than the following:

1.1. the fire floor,

1.2. the two floors immediately below the fire floor, and

1.3. the floor immediately above the fire floor.

2. Subject to the approval of the building official, pressurization is not required for elevators in high rise buildings with less than 75 feet (22 860 mm) from the lowest floor to the highest ceiling of the stories served by the elevator.

**708.14.2.1.1 Supply air.** The supply air ((~~intake~~)) shall be taken from an outside, uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system ((~~ex~~)) outlet.

**Exception:** The supply air intake may be located within the building provided it is located no more than 20 feet (6096 mm) from major openings in the building exterior such as loading docks and vehicular entrances. There shall be no obstruction to the flow of air to the intake.

**708.14.2.1.2 Use of ventilation systems.** Ventilation systems other than hoistway supply air systems are permitted to be used to exhaust air from adjacent space when

1           necessary to maintain the differential pressure relationships. Ventilation systems used  
2           to achieve hoistway pressurization are not required to comply with Sections 708.14.2.4,  
3           708.2.14.5 or 909.

4       **708.14.2.2 Rational analysis.** A rational analysis complying with Section 909.4 shall be  
5       submitted with the *construction documents*.

6       **708.14.2.3 Ducts for system.** Any duct system that is part of the pressurization system shall  
7       be protected with the same *fire-resistance rating* as required for the elevator ((~~shaft~~))  
8       hoistway enclosure.

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**Interpretation I708.14:** Dampers other than motorized dampers required by the *Seattle*  
11       *Energy Code* are not permitted in hoistway pressurization system supply air system unless  
12       approved by the building official.

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14       **708.14.2.4 Fan system.** The fan system provided for the pressurization system shall be as  
15       required by this section.

16       **708.14.2.4.1 Fire resistance.** When located within the building, the fan system that  
17       provides the pressurization shall be protected with the same *fire-resistance rating* required  
18       for the elevator ((~~shaft~~)) hoistway enclosure.

19       **708.14.2.4.2 Smoke detection.** The fan system shall be equipped with ((a)) two smoke  
20       detectors ((~~that will~~)) located in the duct in accordance with NFPA 72 arranged to  
21       automatically shut down the fan system only when both smoke detectors activate. ((~~is~~  
22       detected within the system)). The detectors shall be located downstream of the fan and  
23       shall be connected to the fire alarm as a supervisory signal.  
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**708.14.2.4.3 Separate systems.** A separate fan system shall be used for each elevator hoistway.

**708.14.2.4.4 Fan capacity.** The ~~((supply))~~ fan system shall be provided with the capacity to pressurize the elevator hoistway as determined by a registered design professional. The fan system shall be provided with a means to balance or modulate the airflow to the elevator hoistway to meet the differential pressure requirements on all floors for each condition identified by the rational analysis. ~~((either be adjustable with a capacity of at least 1,000 cfm (.4719 m<sup>3</sup>/s) per door, or that specified by a registered design professional to meet the requirements of a designed pressurization system.))~~

**708.14.2.4.5 Fan System Equipment.** In high rise buildings, equipment used in the fan system shall comply with Section 909.10.

**708.14.2.5 ~~((S))~~Legally required standby and emergency power.** ~~((The))~~ Pressurization systems shall be powered by an approved emergency or legally required standby power system. An emergency power system conforming with Section 909.11 shall be provided for pressurization systems in high-rise buildings. Legally required standby power shall be provided ~~((with))~~ for the pressurization system in all other buildings. The emergency and legally required standby power shall be from the same source as other required emergency systems for the building. For other than high-rise buildings, connection ahead of the service disconnecting means in accordance with Seattle Electrical Code Section 701.11(E) is permitted as a source of legally required standby power.



**708.14.2.6 Activation of pressurization system.** The elevator pressurization system shall be activated upon activation of the building fire alarm system or upon activation of the elevator lobby smoke detectors. Where both a building fire alarm system and elevator lobby smoke detectors are present, each shall be independently capable of activating the pressurization system. Activation of the fan serving the hoistway is permitted to be delayed by up to 30 seconds so that elevator recall can be initiated prior to pressurizing the hoistway. Control systems shall be in accordance with Sections 909.12 and 909.13.

**708.14.2.7 Special inspection and acceptance testing.** Special inspection (~~for performance~~) shall be (~~required~~) in accordance with Section 909.18.8. System acceptance shall be in accordance with Section 909.19.

**708.14.2.8 Marking and identification.** Detection and control systems shall be marked in accordance with Section 909.14.

**708.14.2.9 Control diagrams.** Control diagrams shall be provided in accordance with Section 909.15.

**708.14.2.10 Control panel.** A control panel complying with Section 909.16 shall be provided.

**708.14.2.11 System response time.** Hoistway pressurization systems shall comply with the requirements for smoke control system response time in Section 909.17.

**708.14.2.12 Machine rooms.** Elevator machine rooms shall be pressurized in accordance with this section unless separated from the elevator hoistway by construction in accordance with Section 708.

**708.15 Chimneys and fireplaces.** Approved factory-built chimneys shall be installed within shafts as required by Section 708.

**Exception:** Factory-built chimneys that are exposed to the exterior in an approved manner are not required to be installed in shafts.

Approved chimneys serving multiple dwelling units are permitted to be installed within the same shaft, provided approved metal draft stops are installed at each floor level. All combustible construction shall be protected as required for fire-resistance-rated shaft construction. Interior shaft wall joints shall be fire-taped where required and where space allows, but fire-taping is permitted to be omitted from joints on the final closure wall provided the joints are installed in a tight manner.

The back of listed manufactured fireplace boxes is permitted to replace that portion of the shaft wall where they are located, provided the joint between the box and the adjacent shaft wall is tightly constructed and installed according to manufacturer's specification. Fresh air make-up ducts required by the Energy or Mechanical codes are permitted to penetrate the shaft at the fire box. Fresh air make-up ducts which pass through any portion of the building other than the shaft shall be at least 26 gage metal.

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## SECTION 710

### SMOKE BARRIERS

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**710.4 Continuity.** *Smoke barriers* shall form an effective membrane continuous from outside wall to outside wall and from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall or floor supported in buildings of other than Type IIB, IIIB or VB construction.

**Exceptions:**

1. Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke-barrier walls.

2. Smoke barriers used for elevator lobbies in accordance with Section 403.6.1.4, 403.6.2.10 and 405.4.3 are not required to extend from outside wall to outside wall.

3. Smoke barriers used for areas of refuge in accordance with Section 1007.6.2 are not required to extend from outside wall to outside wall.

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**SECTION 713**

**PENETRATIONS**

\*\*\*

**713.3 Fire-resistance-rated walls.** Penetrations into or through *fire walls, fire barriers, smoke barrier walls and fire partitions* shall comply with Sections 713.3.1 through 713.3.3.

Penetrations in *smoke barrier* walls shall also comply with Section 713.5.

**713.3.1 Through penetrations.** Through penetrations of fire-resistance-rated walls shall comply with Section 713.3.1.1 or 713.3.1.2.

**Exception:** Where the penetrating items are steel, ferrous or copper pipes, tubes or conduits, the *annular space* between the penetrating item and the fire-resistance-rated wall is permitted to be protected as follows:

1. In concrete or masonry walls where the penetrating item is a maximum 6-inch (152 mm) nominal diameter and the area of the opening through the wall does not exceed 144 square inches (0.0929 m<sup>2</sup>), concrete, grout or mortar is permitted where it is installed the full thickness of the wall or the thickness required to maintain the *fire-resistance rating*; or
2. The material used to fill the *annular space* shall prevent the passage of flame and hot gases sufficient to ignite cotton waste when subjected to ASTM E 119 or UL 263 time-temperature fire conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for the time period equivalent to the *fire-resistance rating* of the construction penetrated.

**713.3.1.1 Fire-resistance-rated assemblies.** Penetrations shall be installed as tested in an *approved* fire-resistance-rated assembly.

**713.3.1.2 Through-penetration firestop system.** *Through penetrations* shall be protected by an *approved* penetration firestop system installed as tested in accordance with ASTM E 814 or UL

1479, with a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water and shall have an F rating of not less than the required *fire-resistance rating* of the wall penetrated.

**713.3.2 Membrane penetrations.** Membrane penetrations shall comply with Section 713.3.1.

Where walls or partitions are required to have a *fire-resistance rating*, recessed fixtures shall be installed such that the required fire-resistance will not be reduced.

**Exceptions:**

1. Membrane penetrations of maximum 2-hour fire-resistance-rated walls and partitions by steel electrical boxes that do not exceed 16 square inches (0.0103 m<sup>2</sup>) in area, provided the aggregate area of the openings through the membrane does not exceed 100 square inches (0.0645 m<sup>2</sup>) in any 100 square feet (9.29m<sup>2</sup>) of wall area. The *annular space* between the wall membrane and the box shall not exceed 1/8 inch (3.1 mm). Such boxes on opposite sides of the wall or partition shall be separated by one of the following:

1.1. By a horizontal distance of not less than 24 inches (610 mm) where the wall or partition is constructed with individual noncommunicating stud cavities;

1.2. By a horizontal distance of not less than the depth of the wall cavity where the wall cavity is filled with cellulose loose-fill, rockwool or slag mineral wool insulation;

1.3. By solid fireblocking in accordance with Section 717.2.1;

1.4. By protecting both outlet boxes with *listed* putty pads; or

1.5. By other *listed* materials and methods.

2. Membrane penetrations by *listed* electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the

instructions included in the listing. The *annular space* between the wall membrane and the box shall not exceed 1/8 inch (3.1 mm) unless *listed* otherwise.

Such boxes on opposite sides of the wall or partition shall be separated by one of the following:

2.1. By the horizontal distance specified in the listing of the electrical boxes;

2.2. By solid fireblocking in accordance with Section 717.2.1;

2.3. By protecting both boxes with *listed* putty

pads; or

2.4. By other *listed* materials and methods.

3. Membrane penetrations by electrical boxes of any size or type, which have been *listed* as part of a wall opening protective material system for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing.

4. Membrane penetrations by boxes other than electrical boxes, provided such penetrating items and the *annular space* between the wall membrane and the box, are protected by an *approved membrane penetration* firestop system installed as tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water, and shall have an F and T rating of not less than the required *fire-resistance rating* of the wall penetrated and be installed in accordance with their listing.

5. The *annular space* created by the penetration of an automatic sprinkler, provided it is covered by a metal escutcheon plate.

6. Ventilation openings are permitted to be installed in soffits of exterior balconies required to have a fire-resistance-rating equivalent to the floor. If provided, ventilation openings shall be covered with corrosion-resistant metal mesh.

**713.3.3 Dissimilar materials.** Noncombustible penetrating items shall not connect to combustible items beyond the point of firestopping unless it can be demonstrated that the fire-resistance integrity of the wall is maintained.

**713.4 Horizontal assemblies.** Penetrations of a floor, floor/ceiling assembly or the ceiling membrane of a roof/ceiling assembly not required to be enclosed in a shaft by Section 708.2 shall be protected in accordance with Sections 713.4.1 through 713.4.2.2.

**713.4.1 Fire-resistance-rated assemblies.** Penetrations of the fire-resistance-rated floor, floor/ceiling assembly or the ceiling membrane of a roof/ceiling assembly shall comply with Sections 713.4.1.1 through 713.4.1.4. Penetrations in horizontal *smoke barriers* shall also comply with 713.5.

**713.4.1.1 Through penetrations.** Through penetrations of fire-resistance-rated *horizontal assemblies* shall comply with Section 713.4.1.1.1 or 713.4.1.1.2.

**Exceptions:**

1. Penetrations by steel, ferrous or copper conduits, pipes, tubes or vents or concrete or masonry items through a single fire-resistance rated floor assembly where the *annular space* is protected with materials that prevent the passage of flame and hot gases sufficient to ignite cotton waste when subjected to ASTM E 119 or UL 263 time-temperature fire conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for

the time period equivalent to the *fire-resistance rating* of the construction penetrated. Penetrating items with a maximum 6-inch (152 mm) nominal diameter shall not be limited to the penetration of a single fire-resistance-rated floor assembly, provided the aggregate area of the openings through the assembly does not exceed 144 square inches (92 900 mm<sup>2</sup>) in any 100 square feet (9.3 m<sup>2</sup>) of floor area.

2. Penetrations in a single concrete floor by steel, ferrous or copper conduits, pipes, tubes or vents with a maximum 6-inch (152 mm) nominal diameter, provided the concrete, grout or mortar is installed the full thickness of the floor or the thickness required to maintain the *fire-resistance rating*. The penetrating items shall not be limited to the penetration of a single concrete floor, provided the area of the opening through each floor does not exceed 144 square inches (92 900 mm<sup>2</sup>).

3. Penetrations by *listed* electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and installed in accordance with the instructions included in the listing.

**713.4.1.1.1 Installation.** *Through penetrations* shall be installed as tested in the *approved* fire-resistance-rated assembly.

**713.4.1.1.2 Through-penetration firestop system.** *Through penetrations* shall be protected by an *approved through-penetration firestop system* installed and tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.



**Exception:** Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating.

**713.4.1.2 Membrane penetrations.** Penetrations of membranes that are part of a *horizontal assembly* shall comply with Section 713.4.1.1.1 or 713.4.1.1.2. Where floor/ceiling assemblies are required to have a *fire-resistance rating*, recessed fixtures shall be installed such that the required *fire resistance* will not be reduced.

**Exceptions:**

1. *Membrane penetrations* by steel, ferrous or copper conduits, pipes, tubes or vents, or concrete or masonry items where the *annular space* is protected either in accordance with Section 713.4.1.1 or to prevent the free passage of flame and the products of combustion. The aggregate area of the openings through the membrane shall not exceed 100 square inches (64 500 mm<sup>2</sup>) in any 100 square feet (9.3 m<sup>2</sup>) of ceiling area in assemblies tested without penetrations.

2. Ceiling membrane penetrations of maximum 2-hour *horizontal assemblies* by steel electrical boxes that do not exceed 16 square inches (10 323 mm<sup>2</sup>) in area, provided the aggregate area of such penetrations does not exceed 100 square inches (44 500 mm<sup>2</sup>) in any 100 square feet (9.29 m<sup>2</sup>) of ceiling area, and the annular space between the ceiling membrane and the box does not exceed 1/8 inch (3.2 mm).

3. Membrane penetrations by electrical boxes of any size or type, which have been *listed* as part of an opening protective material system for use in *horizontal assemblies* and are installed in accordance with the instructions included in the listing.

1 4. *Membrane penetrations* by *listed* electrical boxes of any material, provided such boxes have  
2 been tested for use in fire-resistance-rated assemblies and are installed in accordance with the  
3 instructions included in the listing. The *annular space* between the ceiling membrane and the box  
4 shall not exceed 1/8 inch (3.2 mm) unless *listed* otherwise.

5 5. The *annular space* created by the penetration of a fire sprinkler, provided it is covered by a  
6 metal eschutcheon plate.

7  
8 **713.4.1.3 Ducts and air transfer openings.** Penetrations of *horizontal assemblies* by ducts and  
9 air transfer openings shall comply with Section 716.

10 **713.4.1.4 Dissimilar materials.** Noncombustible penetrating items shall not connect to  
11 combustibles materials beyond the point of firestopping unless it can be demonstrated that the  
12 fire-resistance integrity of the *horizontal assembly* is maintained.

13  
14 **713.4.2 Nonfire-resistance-rated assemblies.** Penetrations of nonfire-resistance-rated floor or  
15 floor/ceiling assemblies or the ceiling membrane of a nonfire-resistance-rated roof/ceiling  
16 assembly shall meet the requirements of Section 708 or shall comply with Section 713.4.2.1 or  
17 713.4.2.2.

18  
19 **713.4.2.1 Noncombustible penetrating items.** Noncombustible penetrating items that connect  
20 not more than three *stories* are permitted, provided that the *annular space* is filled to resist the  
21 free passage of flame and the products of combustion with an *approved* noncombustible material  
22 or with a fill, void or cavity material that is tested and classified for use in through-penetration  
23 firestop systems.  
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**713.4.2.2 Penetrating items.** Penetrating items that connect not more than two *stories* are permitted, provided that the *annular space* is filled with an *approved* material to resist the free passage of flame and the products of combustion.

**Code Alternate CA 713.4:** When approved by the building official, the following assemblies satisfy the requirements of Section 713.4.1.2.

<b><u>PROTECTION REQUIRED</u></b>		
<b><u>Opening Type</u></b>	<b><u>Framing Type</u></b>	
	<u>Solid Sawn</u>	<u>MPCT &amp; PWJ<sup>1</sup></u>
<u>Can Light</u>	<u>In floor joists, solid block each side of light with 2 inch framing or 5/8 inch gypsum wallboard.</u> <u>In dropped soffits, prerock bottom of floor joists above with 5/8 inch gypsum wallboard.</u>	<u>Box the light (four sides and top) with 5/8 inch gypsum wallboard, 1-1/2 inch high-density mineral fiber, or 3-1/2 inch fiberglass, securely fastened. See Illustration B.</u>
<u>HVAC<sup>2</sup></u>	<u>Solid block beside opening with 2 inch framing or 5/8 inch gypsum wallboard and,</u>	<u>Box the fan or diffuser (four sides and top) with 5/8 inch gypsum wallboard, 1-1/2 inch high-density mineral fiber, or 3-1/2 inch fiberglass, securely fastened, and</u>

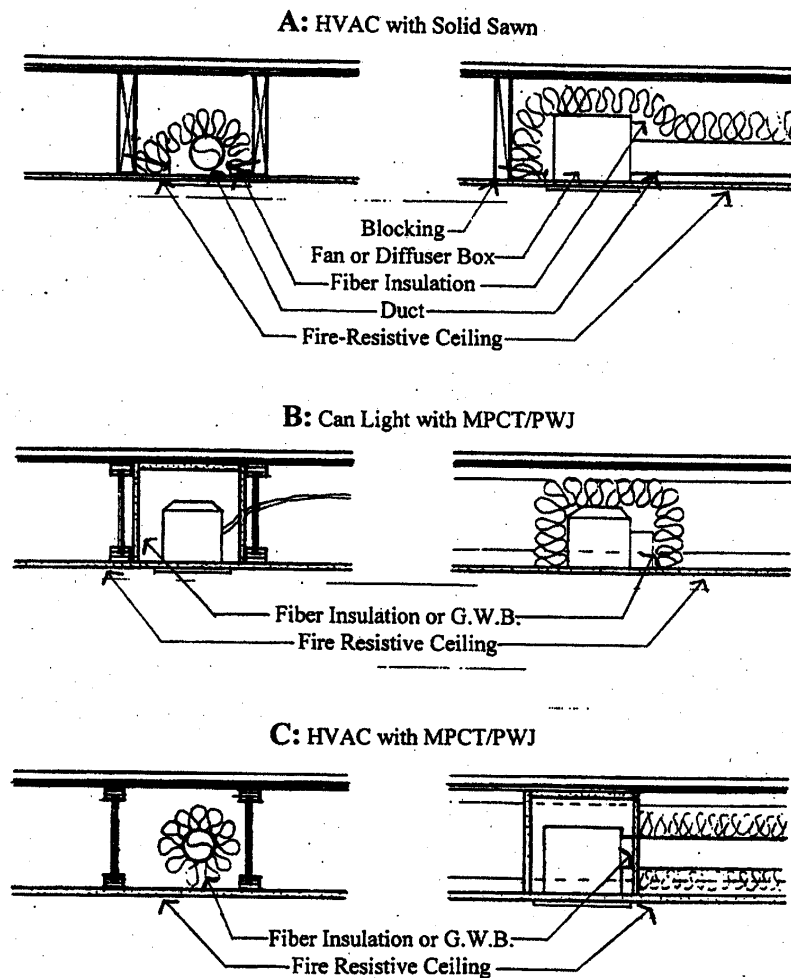
	<u>Drape 1-1/2 inch high-density mineral fiber insulation or 3-1/2 inch fiberglass over top of duct and down sides to contact the ceiling.</u>  <u>Secure in place. See Illustration A.</u>  <u>Protect duct for 10 feet from opening in ceiling.</u>	<u>Wrap duct completely with 1-1/2 inch high-density mineral fiber or 3-1/2 inch fiberglass, secured in place, or line joist cavity with 5/8 inch fire-taped gypsum wallboard. See Illustration C.</u>  <u>In sprinklered buildings, protection is required for 10 feet from opening only.</u>
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- <sup>1</sup> MPCT = Metal plate connected trusses
- PWJ = Plywood web joists
- <sup>2</sup> Fan box or diffuser grille and associated metal duct.

**ADDITIONAL REQUIREMENTS.**

1. The area of openings shall be limited to 100 square inches in 100 square feet aggregate with no opening greater than 8" in diameter.
2. HVAC systems installed under permit shall be installed according to plan.
3. Fixtures and equipment shall be installed according to their listing.

4. Ventilation ducts in attics shall be wrapped with mineral fiber insulation and secured in place with metal hangers.
5. Fixtures protected with insulation shall be steel and IC rated.



**Figure CA 713.4**

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## SECTION 715

### OPENING PROTECTIVES

\*\*\*

**715.4 Fire door and shutter assemblies.** Approved *fire door* and fire shutter assemblies shall be constructed of any material or assembly of component materials that conforms to the test requirements of Section 715.4.1, 715.4.2 or 715.4.3 and the *fire protection rating* indicated in Table 715.4. *Fire door* frames with transom lights, sidelights or both shall be permitted in accordance with Section 715.4.5. *Fire door* assemblies and shutters shall be installed in accordance with the provisions of this section and NFPA 80.

#### Exceptions:

1. Labeled protective assemblies that conform to the requirements of this section or UL 10A, UL 14B and UL 14C for tin-clad *fire door* assemblies.
2. Floor *fire door* assemblies in accordance with Section 712.8.

**715.4.1 Side-hinged or pivoted swinging doors.** *Fire door* assemblies with side-hinged and pivoted swinging doors shall be tested in accordance with NFPA 252 or UL 10C. After 5 minutes into the NFPA 252 test, the neutral pressure level in the furnace shall be established at 40 inches (1016 mm) or less above the sill.

**715.4.2 Other types of assemblies.** *Fire door* assemblies with other types of doors, including swinging elevator doors and fire shutter assemblies, shall be tested in accordance with NFPA 252 or UL 10B. The pressure in the furnace shall be maintained as nearly equal to the atmospheric

pressure as possible. Once established, the pressure shall be maintained during the entire test period.

**715.4.3 Door assemblies in corridors and smoke barriers.** *Fire door* assemblies required to have a minimum *fire protection rating* of 20 minutes where located in *corridor* walls or *smoke barrier* walls having a *fire-resistance rating* in accordance with Table 715.4 shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.

**Exceptions:**

1. Viewports that require a hole not larger than 1 inch (25 mm) in diameter through the door, have at least a 0.25-inch-thick (6.4 mm) glass disc and the holder is of metal that will not melt out where subject to temperatures of 1,700°F (927°C).
2. *Corridor* door assemblies in occupancies of Group I-2 shall be in accordance with Section 407.3.1.
3. Unprotected openings shall be permitted for *corridors* in multitheater complexes where each motion picture auditorium has at least one-half of its required *exit* or *exit access doorways* opening directly to the exterior or into an *exit* passageway.
4. Horizontal sliding doors in *smoke barriers* that comply with Sections 408.3 and 408.8.4 in occupancies in Group I-3.

**715.4.3.1 Smoke and draft control.** *Fire door* assemblies shall also meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m<sup>3</sup>/s · m<sup>2</sup>) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and

elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

**715.4.3.2 Glazing in door assemblies.** In a 20-minute *fire door* assembly, the glazing material in the door itself shall have a minimum fire-protection-rated glazing of 20 minutes and shall be exempt from the hose stream test. Glazing material in any other part of the door assembly, including transom lights and sidelights, shall be tested in accordance with NFPA 257 or UL 9, including the hose stream test, in accordance with Section 715.5.

**715.4.4 Doors in exit enclosures and exit passageways.** *Fire door* assemblies in *exit* enclosures and *exit* passageways shall have a maximum transmitted temperature end point of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.

**Exception:** The maximum transmitted temperature rise is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.

**715.4.4.1 Glazing in doors.** Fire-protection-rated glazing in excess of 100 square inches (0.065 m<sup>2</sup>) shall be permitted in *fire door* assemblies when tested as components of the door assemblies and not as glass lights, and shall have a maximum transmitted temperature rise of 450°F (250°C) in accordance with Section 715.4.4.

**Exception:** The maximum transmitted temperature rise is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.



1 **715.4.5 Fire door frames with transom lights and sidelights.** Door frames with transom lights,  
2 sidelights, or both, shall be permitted where a 3/4-hour *fire protection rating* or less is required in  
3 accordance with Table 715.4. Where a *fire protection rating* exceeding 3/4-hour is required in  
4 accordance with Table 715.4, *fire door* frames with transom lights, sidelights, or both, shall be  
5 permitted where installed with fire-resistance-rated glazing tested as an assembly in accordance  
6 with ASTM E119 or UL 263.  
7

8 **715.4.6 Labeled protective assemblies.** *Fire door* assemblies shall be labeled by an *approved*  
9 *agency*. The *labels* shall comply with NFPA 80, and shall be permanently affixed to the door or  
10 frame.  
11

12 **715.4.6.1 Fire door labeling requirements.** *Fire doors* shall be labeled showing the name of the  
13 manufacturer or other identification readily traceable back to the manufacturer, the name or  
14 trademark of the third-party inspection agency, the *fire protection rating* and, where required for  
15 *fire doors* in *exit* enclosures and *exit* passageways by Section 715.4.4, the maximum transmitted  
16 temperature end point. Smoke and draft control doors complying with UL 1784 shall be labeled  
17 as such and shall also comply with Section 715.4.6.3. Labels shall be *approved* and permanently  
18 affixed. The *label* shall be applied at the factory or location where fabrication and assembly are  
19 performed.  
20

21 **715.4.6.2 Oversized doors.** Oversized *fire doors* shall bear an oversized *fire door label* by an  
22 *approved agency* or shall be provided with a certificate of inspection furnished by an *approved*  
23 testing agency. When a certificate of inspection is furnished by an *approved* testing agency, the  
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1 certificate shall state that the door conforms to the requirements of design, materials and  
2 construction, but has not been subjected to the fire test.

3 **715.4.6.3 Smoke and draft control door labeling requirements.** Smoke and draft control doors  
4 complying with UL 1784 shall be labeled in accordance with Section 715.4.6.1 and shall show  
5 the letter “S” on the fire rating *label* of the door. This marking shall indicate that the door and  
6 frame assembly are in compliance when *listed* or labeled gasketing is also installed.

7  
8 **715.4.6.4 Fire door frame labeling requirements.** *Fire door* frames shall be labeled showing  
9 the names of the manufacturer and the third-party inspection agency.

10 **715.4.7 Glazing material.** Fire-protection-rated glazing conforming to the opening protection  
11 requirements in Section 715.4 shall be permitted in *fire door* assemblies.

12  
13 **715.4.7.1 Size limitations.** Fire-protection-rated glazing used in *fire doors* shall comply with the  
14 size limitations of NFPA 80.

15 **Exceptions:**

- 16  
17 1. Fire-protection-rated glazing in *fire doors* located in *fire walls* shall be prohibited except  
18 where serving in a *fire door* in a horizontal *exit*, a self-closing swinging door shall be permitted  
19 to have a vision panel of not more than 100 square inches (0.065 m<sup>2</sup>) without a dimension  
20 exceeding 10 inches (254 mm).  
21  
22 2. Fire-protection-rated glazing shall not be installed in *fire doors* having a 1 1/2-hour *fire*  
23 *protection rating* intended for installation in *fire barriers*, unless the glazing is not more than 100  
24 square inches (0.065 m<sup>2</sup>) in area.

1 **715.4.7.2 Exit and elevator protectives.** *Approved* fire-protection-rated glazing used in *fire*  
2 *door* assemblies in elevator and *exit* enclosures shall be so located as to furnish clear vision of  
3 the passageway or approach to the elevator, ramp or *stairway*.

4 **715.4.7.3 Labeling.** Fire-protection-rated glazing shall bear a *label* or other identification  
5 showing the name of the manufacturer, the test standard and information required in Section  
6 715.5.9.1 that shall be issued by an *approved agency* and shall be permanently affixed to the  
7 glazing.  
8

9 **715.4.7.3.1 Identification.** For fire protection-rated glazing, the *label* shall bear the following  
10 four-part identification: “D – H or NH – T or NT – XXX.” “D” indicates that the glazing shall be  
11 used in *fire door* assemblies and that the glazing meets the fire protection requirements of NFPA  
12 252. “H” shall indicate that the glazing meets the hose stream requirements of NFPA 252. “NH”  
13 shall indicate that the glazing does not meet the hose stream requirements of the test. “T” shall  
14 indicate that the glazing meets the temperature requirements of Section 715.4.4.1. “NT” shall  
15 indicate that the glazing does not meet the temperature requirements of Section 715.4.4.1. The  
16 placeholder “XXX” shall specify the fire-protection-rating period, in minutes.  
17

18  
19 **715.4.7.4 Safety glazing.** Fire-protection-rated glazing installed in *fire doors* in areas subject to  
20 human impact in hazardous locations shall comply with Chapter 24.

21 **715.4.8 Door closing.** *Fire doors* shall be self- or automatic-closing in accordance with this  
22 section.  
23

24 **Exceptions:**  
25  
26  
27  
28

1. *Fire doors* located in common walls separating *sleeping units* in Group R-1 shall be permitted without automatic- or self-closing devices.

2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with ((~~Section 3003.2~~)) Chapter 30 shall be permitted to remain open during Phase I emergency recall operation.

**715.4.8.1 Latch required.** Unless otherwise specifically permitted, single *fire doors* and both leaves of pairs of side-hinged swinging *fire doors* shall be provided with an active latch bolt that will secure the door when it is closed.

**715.4.8.2 Automatic-closing fire door assemblies.** Automatic-closing *fire door* assemblies shall be self-closing in accordance with NFPA 80.

**715.4.8.3 Smoke-activated doors.** Automatic-closing doors installed in the following locations shall be automatic-closing by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated:

1. Doors installed across a *corridor*.
2. Doors that protect openings in *exits* or *corridors* required to be of fire-resistance-rated construction.
3. Doors that protect openings in walls that are capable of resisting the passage of smoke in accordance with Section 508.2.5.2.
4. Doors installed in *smoke barriers* in accordance with Section 710.5.

1 5. Doors installed in *fire partitions* in accordance with Section 709.6.

2 6. Doors installed in a *fire wall* in accordance with Section 706.8.

3 7. Doors installed in shaft enclosures in accordance with Section 708.7.

4 8. Doors installed in refuse and laundry chutes and access and termination rooms in accordance  
5 with Section 708.13.

6 9. Doors installed in the walls for compartmentation of underground buildings in accordance  
7 with Section 405.4.2.

8 10. Doors installed in the elevator lobby walls of underground buildings in accordance with  
9 Section 405.4.3.

10 11. Doors installed in smoke partitions in accordance with Section 711.5.3.

11 12. Additional doors installed in accordance with Section 708.14.1.

12  
13  
14 **715.4.8.4 Doors in pedestrian ways.** Vertical sliding or vertical rolling steel *fire doors* in  
15 openings through which pedestrians travel shall be heat activated or activated by smoke detectors  
16 with alarm verification.

17  
18 **715.4.9 Swinging fire shutters.** Where fire shutters of the swinging type are installed in exterior  
19 openings, not less than one row in every three vertical rows shall be arranged to be readily  
20 opened from the outside, and shall be identified by distinguishing marks or letters not less than 6  
21 inches (152 mm) high.

22  
23 **715.4.10 Rolling fire shutters.** Where fire shutters of the rolling type are installed, such shutters  
24 shall include *approved* automatic-closing devices.

25 \*\*\*

## SECTION 716

### DUCTS AND AIR TRANSFER OPENINGS

\*\*\*

**716.5 Where required.** *Fire dampers, smoke dampers and combination fire/smoke dampers* shall be provided at the locations prescribed in Sections 716.5.1 through 716.5.7 and 716.6.

Where an assembly is required to have both *fire dampers* and *smoke dampers, combination fire/smoke dampers* or a *fire damper* and a *smoke damper* shall be required.

**716.5.1 Fire walls.** Ducts and air transfer openings permitted in *fire walls* in accordance with Section 706.11 shall be protected with *listed fire dampers* installed in accordance with their listing.

**716.5.1.1 Horizontal exits.** A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *fire wall* that serves as a horizontal *exit*.

**716.5.2 Fire barriers.** Ducts and air transfer openings of *fire barriers* shall be protected with *approved fire dampers* installed in accordance with their listing. Ducts and air transfer openings shall not penetrate *exit* enclosures and *exit* passageways except as permitted by Sections 1022.4 and 1023.6, respectively.

**Exception:** *Fire dampers* are not required at penetrations of *fire barriers* where any of the following apply:

1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly.

2. Ducts are used as part of an *approved* smoke control system in accordance with Section 909 and where the use of a *fire damper* would interfere with the operation of a smoke control system.

3. Such walls are penetrated by ducted HVAC systems, have a required *fire-resistance rating* of 1 hour or less, are in areas of other than Group H and are in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. For the purposes of this exception, a ducted HVAC system shall be a duct system for conveying supply, return or exhaust air as part of the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than No. 26 gage thickness and shall be continuous from the air-handling appliance or equipment to the air outlet and inlet terminals.

**716.5.2.1 Horizontal exits.** A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *fire barrier* that serves as a horizontal *exit*.

**716.5.3 Shaft enclosures.** Shaft enclosures that are permitted to be penetrated by ducts and air transfer openings shall be protected with *approved* fire and smoke *dampers* installed in accordance with their listing.

**Exceptions:**

1. *Fire dampers* are not required at penetrations of shafts where:

1.1. Steel exhaust subducts are extended at least 22 inches (559 mm) vertically in exhaust shafts, provided there is a continuous airflow upward to the outside; or

1.2. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire-resistance-rated assembly; or

1.3. Ducts are used as part of an *approved* smoke control system designed and installed in accordance with Section 909 and where the *fire damper* will interfere with the operation of the smoke control system; or

1.4. The penetrations are in parking garage exhaust or supply shafts that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.

2. In Group B, M and R occupancies equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, *smoke dampers* are not required at penetrations of shafts where:

2.1. Kitchen, clothes dryer, bathroom and toilet room exhaust openings are installed with steel exhaust subducts, having a minimum wall thickness of 0.187-inch (0.4712 mm) (No. 26 gage);

2.2. The subducts extend at least 22 inches (559 mm) vertically; and

2.3. An exhaust fan is installed at the upper terminus of the shaft that is ~~((powered continuously in accordance with the provisions of Section 909.11,))~~ provided with a legally required standby power system in accordance with Seattle Electrical Code Section 701 so as to maintain a continuous upward airflow to the outside.

3. *Smoke dampers* are not required at penetration of exhaust or supply shafts in parking garages that are separated from other building shafts by not less than 2-hour fire-resistance-rated construction.

4. *Smoke dampers* are not required at penetrations of shafts where ducts are used as part of an *approved* mechanical smoke control system designed in accordance with Section 909 and where the *smoke damper* will interfere with the operation of the smoke control system.



1 5. *Fire dampers* and *combination fire/smoke dampers* are not required in kitchen and clothes  
2 dryer exhaust systems when installed in accordance with the *International Mechanical Code*.

3 **716.5.4 Fire partitions.** Ducts and air transfer openings that penetrate *fire partitions* shall be  
4 protected with *listed fire dampers* installed in accordance with their listing.

5 **Exceptions:** In occupancies other than Group H, *fire dampers* are not required where any of the  
6 following apply:  
7

8 1. Corridor walls in buildings equipped throughout with an *automatic sprinkler system* in  
9 accordance with Section 903.3.1.1 or 903.3.1.2 and the duct is protected as a *through penetration*  
10 in accordance with Section 713.

11 2. Tenant partitions in *covered mall buildings* where the walls are not required by provisions  
12 elsewhere in the code to extend to the underside of the floor or roof sheathing, slab or deck  
13 above.  
14

15 3. The duct system is constructed of *approved* materials in accordance with the *International*  
16 *Mechanical Code* and the duct penetrating the wall complies with all of the following  
17 requirements:  
18

19 3.1. The duct shall not exceed 100 square inches (0.06 m2).

20 3.2. The duct shall be constructed of steel a minimum of 0.0217 inch (0.55 mm) in thickness.

21 3.3. The duct shall not have openings that communicate the *corridor* with adjacent spaces or  
22 rooms.  
23

24 3.4. The duct shall be installed above a ceiling.

25 3.5. The duct shall not terminate at a wall register in the fire-resistance-rated wall.  
26

3.6. A minimum 12-inch-long (305 mm) by 0.060-inch-thick (1.52 mm) steel sleeve shall be centered in each duct opening. The sleeve shall be secured to both sides of the wall and all four sides of the sleeve with minimum 1 1/2-inch by 1 1/2-inch by 0.060-inch (38mm by 38mm by 1.52 mm) steel retaining angles. The retaining angles shall be secured to the sleeve and the wall with No. 10 (M5) screws. The *annular space* between the steel sleeve and the wall opening shall be filled with mineral wool batting on all sides.

**716.5.4.1 Corridors.** A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *corridor* enclosure required to have smoke and draft control doors in accordance with Section 715.4.3.

**Exceptions:**

1. *Smoke dampers* are not required where the building is equipped throughout with an *approved* smoke control system in accordance with Section 909, and *smoke dampers* are not necessary for the operation and control of the system.

2. *Smoke dampers* are not required in *corridor* penetrations where the duct is constructed of steel not less than 0.019 inch (0.48 mm) in thickness and there are no openings serving the *corridor*.

**716.5.5 Smoke barriers.** A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a *smoke barrier*. *Smoke dampers* and *smoke damper* actuation methods shall comply with Section 716.3.3.2.

**Exception:** *Smoke dampers* are not required where the openings in ducts are limited to a single smoke compartment and the ducts are constructed of steel.

**716.5.6 Exterior walls.** Ducts and air transfer openings in fire-resistance-rated *exterior walls* required to have protected openings in accordance with Section 705.10 shall be protected with *listed fire dampers* installed in accordance with their listing.

**716.5.7 Smoke partitions.** A *listed smoke damper* designed to resist the passage of smoke shall be provided at each point that an air transfer opening penetrates a smoke partition. *Smoke dampers* and *smoke damper* actuation methods shall comply with Section 716.3.3.2.

**Exception:** Where the installation of a *smoke damper* will interfere with the operation of a required smoke control system in accordance with Section 909, *approved* alternative protection shall be utilized.

\*\*\*

## SECTION 717

### CONCEALED SPACES

\*\*\*

**717.3 Draftstopping in floors.** In combustible construction, draftstopping shall be installed to subdivide floor/ceiling assemblies in the locations prescribed in Sections 717.3.2 through 717.3.3.

**717.3.1 Draftstopping materials.** Draftstopping materials shall not be less than 1/2-inch (12.7 mm) gypsum board, 3/8-inch (9.5 mm) wood structural panel, 3/8-inch (9.5 mm) particleboard, 1-inch (25-mm) nominal lumber, cement fiberboard, batts or blankets of mineral wool or glass fiber, or other *approved* materials adequately supported. The integrity of draftstops shall be maintained.

**717.3.2 Groups R-1, R-2, and R-3 ((~~and R-4~~)).** Draftstopping shall be provided in floor/ceiling spaces in Group R-1 buildings, in Group R-2 buildings with three or more *dwelling units*, in Group R-3 buildings with two *dwelling units* ((~~and in Group R-4 buildings~~)). Draftstopping shall be located above and in line with the *dwelling unit* and *sleeping unit* separations.

**Exceptions:**

1. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
2. Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.2, provided that automatic sprinklers are also installed in the combustible concealed spaces.

**717.3.3 Other groups.** In other groups, draftstopping shall be installed so that horizontal floor areas do not exceed 1,000 square feet (93 m<sup>2</sup>).

**Exception:** Draftstopping is not required in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

\*\*\*

**717.5 Combustible materials in concealed spaces in Type I or II construction.** Combustible materials shall not be permitted in concealed spaces of buildings of Type I or II construction.

**Exceptions:**

1. Combustible materials in accordance with Section 603.

2. Combustible materials exposed within plenums complying with Section 602 of the  
*International Mechanical Code*.

3. Class A *interior finish* materials classified in accordance with Section 803.

4. Combustible piping within partitions or shaft enclosures installed in accordance with the  
provisions of this code.

5. Combustible piping within concealed ceiling spaces installed in accordance with the  
*International Mechanical Code* and the ((~~International~~)) Uniform Plumbing Code.

6. Combustible insulation and covering on pipe and tubing, installed in concealed spaces other  
than plenums, complying with Section 719.7.

\*\*\*

Section 9. The following section of Chapter 8 of the International Building Code, 2009  
Edition, is amended as follows:

## CHAPTER 8

### INTERIOR FINISHES

\*\*\*

#### [F] SECTION 806

#### DECORATIVE MATERIALS AND TRIM

\*\*\*

[F] **806.5 Interior trim.** Material, other than foam plastic used as interior *trim*, shall have a  
minimum Class C flame spread and smoke-developed index when tested in accordance with  
ASTM E 84 or UL 723, as described in Section 803.1.1. The aggregate area of all

1 ((€))combustible *trim*, excluding handrails and guardrails, shall not exceed 10 percent of the  
2 specific wall or ceiling area in which it is attached.

3 \*\*\*

4 Section 10. The following sections of Chapter 9 of the International Building Code, 2009  
5 Edition, are amended as follows:

6  
7 **CHAPTER 9**

8 **FIRE PROTECTION SYSTEMS**

9 **SECTION 901**

10 **GENERAL**

11 \*\*\*

12  
13 **901.2 Fire protection systems.** *Fire protection systems* shall be installed, repaired, operated and  
14 maintained in accordance with this code and the *International Fire Code*. Any *fire protection*  
15 *system* for which an exception or reduction to the provisions of this code has been granted shall  
16 be considered to be a required system.

17  
18 **Exception:** Any *fire protection system* or portion thereof not required by this code shall be  
19 permitted to be installed for partial or complete protection provided that such system meets the  
20 requirements of this code.

21 **901.2.1 Certificates required.** Individuals who install, inspect, test or maintain fire protection  
22 systems shall obtain a certificate as required by the *International Fire Code*.

23  
24 **Exception:** Individuals who install, inspect, test, or maintain single and multiple station smoke  
25 alarms.

\*\*\*

**901.6 Supervisory service.** Where required, *fire protection systems* shall be monitored by an supervising station in accordance with NFPA 72.

**901.6.1 Automatic sprinkler systems.** Automatic sprinkler systems shall be monitored by an *approved* supervising station.

**Exceptions:**

1. A supervising station is not required for *automatic sprinkler systems* protecting one- and two-family dwellings.
2. Limited area systems serving fewer than 20 sprinklers.

**901.6.2 Fire alarm systems.** Fire alarm systems required by the provisions of Section 907.2 of this code and Sections 907.2 and 907.3 of the *International Fire Code* shall be monitored by an *approved* supervising station in accordance with Section 907.6.5.

**Exceptions:**

1. Single- and multiple-station smoke alarms required by Section 907.2.11.
2. Smoke detectors in Group I-3 occupancies.
3. Supervisory service is not required for *automatic sprinkler systems* in one- and two-family dwellings and townhouses if approved by the fire code official.

**901.6.3 Group H.** Manual fire alarm, automatic fire-extinguishing and emergency alarm systems in Group H occupancies shall be monitored by an *approved* supervising station.

**Exception:** When *approved* by the *building official*, on-site monitoring at a *constantly attended location* shall be permitted provided that notifications to the fire department will be equal to those provided by an *approved* supervising station.

\*\*\*

## SECTION 902

### DEFINITIONS

**902.1 Definitions.** The following words and terms shall, for the purposes of this chapter, and as used elsewhere in this code, have the meanings shown herein.

**[F] ALARM NOTIFICATION APPLIANCE.** A fire alarm system component such as a bell, horn, speaker, light or text display that provides audible, tactile or visible outputs, or any combination thereof.

**[F] ALARM SIGNAL.** A signal indicating an emergency requiring immediate action, such as a signal indicative of fire.

**[F] ALARM VERIFICATION FEATURE.** A feature of automatic fire detection and alarm systems to reduce unwanted alarms wherein smoke detectors report alarm conditions for a minimum period of time, or confirm alarm conditions within a given time period, after being automatically reset, in order to be accepted as a valid alarm-initiation signal.

**[F] ANNUNCIATOR.** A unit containing one or more indicator lamps, alphanumeric displays or other equivalent means in which each indication provides status information about a circuit, condition or location.



1 **[F]AUDIBLE ALARM NOTIFICATION APPLIANCE.**A notification appliance that alerts by  
2 the sense of hearing.

3 **[F] AUTOMATIC.** As applied to fire protection devices, a device or system providing an  
4 emergency function without the necessity for human intervention and activated as a result of a  
5 predetermined temperature rise, rate of temperature rise or combustion products.  
6

7 **[F] AUTOMATIC FIRE-EXTINGUISHING SYSTEM.** An *approved* system of devices and  
8 equipment which automatically detects a fire and discharges an *approved* fire-extinguishing  
9 agent onto or in the area of a fire.

10 **[F]AUTOMATIC SMOKE DETECTION SYSTEM.**A fire alarm system that has initiation  
11 devices that utilize smoke detectors for protection of an area such as a room or space with  
12 detectors to provide early warning of fire.  
13

14 **[F] AUTOMATIC SPRINKLER SYSTEM.** An automatic sprinkler system, for fire protection  
15 purposes, is an integrated system of underground and overhead piping designed in accordance  
16 with fire protection engineering standards. The system includes a suitable water supply. The  
17 portion of the system above the ground is a network of specially sized or hydraulically designed  
18 piping installed in a structure or area, generally overhead, and to which automatic sprinklers are  
19 connected in a systematic pattern. The system is usually activated by heat from a fire and  
20 discharges water over the fire area.  
21  
22

23 **[F] AVERAGE AMBIENT SOUND LEVEL.** The root mean square, A-weighted sound  
24 pressure level measured over a 24-hour period, or the time any person is present, whichever time  
25 period is less.  
26  
27  
28

1 **[F] CARBON DIOXIDE EXTINGUISHING SYSTEMS.** A system supplying carbon dioxide  
2 (CO<sub>2</sub>) from a pressurized vessel through fixed pipes and nozzles. The system includes a manual-  
3 or automatic-actuating mechanism.

4 **[F] CEILING LIMIT.** The maximum concentration of an air-borne contaminant to which one  
5 may be exposed, as published in DOL 29 CFR Part 1910.1000.

6 **[F] CLEAN AGENT.** Electrically nonconducting, volatile or gaseous fire extinguishant that  
7 does not leave a residue upon evaporation.

8 **[F] CONSTANTLY ATTENDED LOCATION.** A designated location at a facility staffed by  
9 trained personnel on a continuous basis where alarm or supervisory signals are monitored and  
10 facilities are provided for notification of the fire department or other emergency services.

11 **[F] DELUGE SYSTEM.** A sprinkler system employing open sprinklers attached to a piping  
12 system connected to a water supply through a valve that is opened by the operation of a detection  
13 system installed in the same areas as the sprinklers. When this valve opens, water flows into the  
14 piping system and discharges from all sprinklers attached thereto.

15 **[F] DETECTOR, HEAT.** A fire detector that senses heat— either abnormally high temperature  
16 or rate of rise, or both.

17 **[F] DRY-CHEMICAL EXTINGUISHING AGENT.** A powder composed of small particles,  
18 usually of sodium bicarbonate, potassium bicarbonate, urea-potassium-based bicarbonate,  
19 potassium chloride or monoammonium phosphate, with added particulate material supplemented  
20 by special treatment to provide resistance to packing, resistance to moisture absorption (caking)  
21 and the proper flow capabilities.  
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1 **[F] ELEVATOR GROUP.** A grouping of elevators in a building located adjacent or directly  
2 across from one another that responds to a common hall call button(s).

3 **[F] EMERGENCY ALARM SYSTEM.** A system to provide indication and warning of  
4 emergency situations involving hazardous materials.

5 **[F] EMERGENCY VOICE/ALARM COMMUNICATIONS.** Dedicated manual or automatic  
6 facilities for originating and distributing voice instructions, as well as alert and evacuation  
7 signals pertaining to a fire emergency, to the occupants of a building.

8 **[F] FIRE ALARM BOX, MANUAL.** See “Manual fire alarm box.”

9 **[F] FIRE ALARM CONTROL UNIT.** A system component that receives inputs from  
10 automatic and manual fire alarm devices and may be capable of supplying power to detection  
11 devices and transponder(s) or off-premises transmitter(s). The control unit may be capable of  
12 providing a transfer of power to the notification appliances and transfer of condition to relays or  
13 devices.

14 **[F] FIRE ALARM SIGNAL.** A signal initiated by a fire alarm-initiating device such as a  
15 manual fire alarm box, automatic fire detector, waterflow switch or other device whose activation  
16 is indicative of the presence of a fire or fire signature.

17 **[F] FIRE ALARM SYSTEM.** A system or portion of a combination system consisting of  
18 components and circuits arranged to monitor and annunciate the status of fire alarm or  
19 supervisory signal-initiating devices and to initiate the appropriate response to those signals.

20 **[F] FIRE AREA.** The aggregate floor area enclosed and bounded by fire walls, *fire barriers*,  
21 *exterior walls* or *horizontal assemblies* of a building. Areas of the building not provided with  
22

surrounding walls shall be included in the fire area if such areas are included within the horizontal projection of the roof or floor next above.

**[F] FIRE COMMAND CENTER.** The principal attended or unattended location where the status of detection, alarm communications and control systems is displayed, and from which the system(s) can be manually controlled.

**FIRE DETECTION SYSTEM.** A system of smoke or heat detectors monitored at an approved central station, with no requirement for notification appliances in the building.

**[F] FIRE DETECTOR, AUTOMATIC.** A device designed to detect the presence of a fire signature and to initiate action.

**[F] FIRE PROTECTION SYSTEM.** *Approved* devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof.

**[F] FIRE SAFETY FUNCTIONS.** Building and fire control functions that are intended to increase the level of life safety for occupants or to control the spread of harmful effects of fire.

**[F] FOAM-EXTINGUISHING SYSTEM.** A special system discharging a foam made from concentrates, either mechanically or chemically, over the area to be protected.

**[F] HALOGENATED EXTINGUISHING SYSTEM.** A fire-extinguishing system using one or more atoms of an element from the halogen chemical series: fluorine, chlorine, bromine and iodine.

**[F] INITIATING DEVICE.** A system component that originates transmission of a change-of-state condition, such as in a smoke detector, manual fire alarm box or supervisory switch.

1 **[F] MANUAL FIRE ALARM BOX.** A manually operated device used to initiate an alarm  
2 signal.

3 **[F] MULTIPLE-STATION ALARM DEVICE.** Two or more single-station alarm devices that  
4 are capable of interconnection such that actuation of one causes all integral or separate audible  
5 alarms to operate. It also can consist of one single-station alarm device having connections to  
6 other detectors or to a manual fire alarm box.  
7

8 **[F] MULTIPLE-STATION SMOKE ALARM.** Two or more single-station alarm devices that  
9 are capable of interconnection such that actuation of one causes the appropriate alarm signal to  
10 operate in all interconnected alarms.  
11

12 **[F] NOTIFICATION ZONE.** See “Zone, notification.”

13 **[F] NUISANCE ALARM.** An alarm caused by mechanical failure, malfunction, improper  
14 installation or lack of proper maintenance, or an alarm activated by a cause that cannot be  
15 determined.  
16

17 **[W] PORTABLE SCHOOL CLASSROOM.** A structure, transportable in one or more  
18 sections, that requires a chassis to be transported, and is designed to be used as an educational  
19 space with or without a permanent foundation. The structure shall be trailerable and capable of  
20 being demounted and relocated to other locations as needs arise.

21 **[F] RECORD DRAWINGS.** Drawings (“as built”) that document the location of all devices,  
22 appliances, wiring sequences, wiring methods and connections of the components of a fire alarm  
23 system as installed.  
24  
25  
26  
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28

1 **[F] SINGLE-STATION SMOKE ALARM.** An assembly incorporating the detector, the  
2 control equipment and the alarm-sounding device in one unit, operated from a power supply  
3 either in the unit or obtained at the point of installation.

4 **[F] SMOKE ALARM.** A single- or multiple-station alarm responsive to smoke.

5 **[F] SMOKE DETECTOR.** A *listed* device that senses visible or invisible particles of  
6 combustion.  
7

8 **SMOKEPROOF ENCLOSURE.** An exit stairway designed and constructed so that the  
9 movement of the products of combustion produced by a fire occurring in any part of the building  
10 into the enclosure is limited.  
11

12 **[F] STANDPIPE SYSTEM, CLASSES OF.** Standpipe classes are as follows:

13 **Class I system.** A system providing 2-1/2-inch (64 mm) hose connections to supply water for use  
14 by fire departments and those trained in handling heavy fire streams.

15 **Class II system.** A system providing 1-1/2-inch (38 mm) hose stations to supply water for use  
16 primarily by the building occupants or by the fire department during initial response.  
17

18 **Class III system.** A system providing 1-1/2-inch (38 mm) hose stations to supply water for use  
19 by building occupants and 2-1/2-inch (64 mm) hose connections to supply a larger volume of  
20 water for use by fire departments and those trained in handling heavy fire streams.  
21

22 **[F] STANDPIPE, TYPES OF.** Standpipe types are as follows:

23 **Automatic dry.** A dry standpipe system, normally filled with pressurized air, that is arranged  
24 through the use of a device, such as dry pipe valve, to admit water into the system piping  
25  
26  
27  
28

1 automatically upon the opening of a hose valve. The water supply for an automatic dry standpipe  
2 system shall be capable of supplying the system demand.

3 **Automatic wet.** A wet standpipe system that has a water supply that is capable of supplying the  
4 system demand automatically.

5 **Manual dry.** A dry standpipe system that does not have a permanent water supply attached to the  
6 system. Manual dry standpipe systems require water from a fire department pumper to be  
7 pumped into the system through the fire department connection in order to meet the system  
8 demand.  
9

10 **Manual wet.** A wet standpipe system connected to a water supply for the purpose of maintaining  
11 water within the system but does not have a water supply capable of delivering the system  
12 demand attached to the system. Manual-wet standpipe systems require water from a fire  
13 department pumper (or the like) to be pumped into the system in order to meet the system  
14 demand.  
15

16 **Semiautomatic dry.** A dry standpipe system that is arranged through the use of a device, such as  
17 a deluge valve, to admit water into the system piping upon activation of a remote control device  
18 located at a hose connection. A remote control activation device shall be provided at each hose  
19 connection. The water supply for a semiautomatic dry standpipe system shall be capable of  
20 supplying the system demand.  
21

22 **[F] SUPERVISING STATION.** A facility that receives signals and at which personnel are in  
23 attendance at all times to respond to these signals.  
24  
25  
26

1 **[F] SUPERVISORY SERVICE.** The service required to monitor performance of guard tours  
2 and the operative condition of fixed suppression systems or other systems for the protection of  
3 life and property.

4 **[F] SUPERVISORY SIGNAL.** A signal indicating the need of action in connection with the  
5 supervision of guard tours, the fire suppression systems or equipment or the maintenance features  
6 of related systems.

7  
8 **[F] SUPERVISORY SIGNAL-INITIATING DEVICE.** An initiation device, such as a valve  
9 supervisory switch, water-level indicator or low-air pressure switch on a dry-pipe sprinkler  
10 system, whose change of state signals an off-normal condition and its restoration to normal of a  
11 fire protection or life safety system, or a need for action in connection with guard tours, fire  
12 suppression systems or equipment or maintenance features of related systems.

13  
14 **[F] TIRES, BULKSTORAGEOF.** Storage of tires where the area available for storage exceeds  
15 20,000 cubic feet (566m3).

16  
17 **[F] TROUBLE SIGNAL.** A signal initiated by the fire alarm system or device indicative of a  
18 fault in a monitored circuit or component.

19 **[F] VISIBLE ALARM NOTIFICATION APPLIANCE.** A notification appliance that alerts by  
20 the sense of sight.

21 **[F] WET-CHEMICAL EXTINGUISHING SYSTEM.** A solution of water and potassium-  
22 carbonate-based chemical, potassium-acetate-based chemical or a combination thereof, forming  
23 an extinguishing agent.  
24  
25  
26



1 **[F] WIRELESS PROTECTION SYSTEM.** A system or a part of a system that can transmit  
2 and receive signals without the aid of wire.

3 **[F] ZONE.** A defined area within the protected premises. A zone can define an area from which  
4 a signal can be received, an area to which a signal can be sent or an area in which a form of  
5 control can be executed.

6  
7 **[F] ZONE, NOTIFICATION.** An area within a building or facility covered by notification  
8 appliances which are activated simultaneously.

### 9 **SECTION 903**

#### 10 **AUTOMATIC SPRINKLER SYSTEMS**

11 \*\*\*  
12

13 **[F] 903.2 Where required.** Approved *automatic sprinkler systems* in new buildings and  
14 structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

15 **Exception:** Spaces or areas in telecommunications buildings used exclusively for  
16 telecommunications equipment, associated electrical power distribution equipment, batteries and  
17 standby engines, provided those spaces or areas are equipped throughout with an automatic  
18 smoke detection system in accordance with Section 907.2 and are separated from the remainder  
19 of the building by not less than 1-hour *fire barriers* constructed in accordance with Section 707  
20 or not less than 2-hour *horizontal assemblies* constructed in accordance with Section 712, or  
21 both.  
22

23  
24 **[F] 903.2.1 Group A.** An *automatic sprinkler system* shall be provided throughout buildings and  
25 portions thereof used as Group A occupancies as provided in this section. For Group A-1, A-2,  
26

A-3 and A-4 occupancies, the *automatic sprinkler system* shall be provided throughout the floor area where the Group A-1, A-2, A-3 or A-4 occupancy is located, and in all floors from the Group A occupancy to, and including, the nearest *level of exit discharge* serving the Group A occupancy. For Group A-5 occupancies, the *automatic sprinkler system* shall be provided in the spaces indicated in Section 903.2.1.5.

**[F] 903.2.1.1 Group A-1.** An *automatic sprinkler system* shall be provided for Group A-1 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 12,000 square feet (1115 m<sup>2</sup>);
2. The *fire area* has an *occupant load* of 300 or more;
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies; or
4. The *fire area* contains a multitheater complex.

**[F] 903.2.1.2 Group A-2.** An *automatic sprinkler system* shall be provided for Group A-2 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 5,000 square feet (464.5 m<sup>2</sup>);
2. The *fire area* has an *occupant load* of 100 or more; or
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

**Exception:** Item 3 does not apply to fire areas that include space located one floor above the level of exit discharge if the occupant load of the upper floor is less than 50.

**[F] 903.2.1.3 Group A-3.** An *automatic sprinkler system* shall be provided for Group A-3 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 12,000 square feet (1115 m<sup>2</sup>);
2. The *fire area* has an *occupant load* of 300 or more; or
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

**[F] 903.2.1.4 Group A-4.** An *automatic sprinkler system* shall be provided for Group A-4 occupancies where one of the following conditions exists:

1. The *fire area* exceeds 12,000 square feet (1115 m<sup>2</sup>);
2. The *fire area* has an *occupant load* of 300 or more; or
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

**[F] 903.2.1.5 Group A-5.** An *automatic sprinkler system* shall be provided for Group A-5 occupancies in the following areas: concession stands, retail areas, press boxes and other accessory use areas in excess of 1,000 square feet (93 m<sup>2</sup>).

**[W] 903.2.1.6 Nightclub.** An *automatic sprinkler system* shall be provided throughout nightclubs. Any space to be constructed for, used for, or converted to, occupancy as a *nightclub* shall provide an automatic sprinkler system as required by this section.

**[F] 903.2.2 Group B ambulatory health care facilities.** An *automatic sprinkler system* shall be installed throughout all fire areas containing a Group B ambulatory health care facility occupancy when either of the following conditions exists at any time:

1. Four or more care recipients are incapable of self preservation.

2. One or more care recipients who are incapable of self preservation are located at other than the  
*level of exit discharge* serving such an occupancy.

**[W] [F] 903.2.3 Group E.** An *automatic sprinkler system* shall be provided for Group E  
occupancies. ((as follows:

1. ~~Throughout all Group E fire areas greater than 12,000 square feet (1115 m<sup>2</sup>) in area.~~

2. ~~Throughout every portion of educational buildings below the lowest level of exit discharge  
serving that portion of the building.~~

~~**Exception:** An automatic sprinkler system is not required in any area below the lowest level of  
exit discharge serving that area where every classroom throughout the building has at least one  
exterior exit door at ground level.))~~

**Exceptions:**

1. Portable school classrooms if the aggregate area of any cluster of portable school classrooms  
does not exceed 5,000 square feet (465 m<sup>2</sup>); and clusters of portable school classrooms shall be  
separated as required in Chapter 5.

2. Group E occupancies with an occupant load of 50 or less.

**[F] 903.2.4 Group F-1.** An *automatic sprinkler system* shall be provided throughout all buildings  
containing a Group F-1 occupancy where one of the following conditions exists:

1. A Group F-1 *fire area* exceeds 12,000 square feet (1115 m<sup>2</sup>).

2. A Group F-1 *fire area* is located more than three stories above *grade plane*.

3. The combined area of all Group F-1 *fire areas* on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m2).

**[F] 903.2.4.1 Woodworking operations.** An *automatic sprinkler system* shall be provided throughout all Group F-1 occupancy *fire areas* that contain woodworking operations in excess of 2,500 square feet (232m2) in area which generate finely divided combustible waste or use finely divided combustible materials.

**[F] 903.2.5 Group H.** *Automatic sprinkler systems* shall be provided in high-hazard occupancies as required in Sections 903.2.5.1 through 903.2.5.3.

**[F] 903.2.5.1 General.** An *automatic sprinkler system* shall be installed in Group H occupancies.

**[F] 903.2.5.2 Group H-5.** An *automatic sprinkler system* shall be installed throughout buildings containing Group H-5 occupancies. The design of the sprinkler system shall not be less than that required by this code for the occupancy hazard classifications in accordance with Table 903.2.5.2. Where the design area of the sprinkler system consists of a *corridor* protected by one row of sprinklers, the maximum number of sprinklers required to be calculated is 13.

**[F] 903.2.5.3 Pyroxylin plastics.** An *automatic sprinkler system* shall be provided in buildings, or portions thereof, where cellulose nitrate film or pyroxylin plastics are manufactured, stored or handled in quantities exceeding 100 pounds (45 kg).

**[F] 903.2.6 Group I.** An *automatic sprinkler system* shall be provided throughout buildings with a Group I *fire area*.

**Exception:** An *automatic sprinkler system* installed in accordance with Section 903.3.1.2 or 903.3.1.3 shall be allowed in Group I-1 facilities.

1 [F] **903.2.7 Group M.** An *automatic sprinkler system* shall be provided throughout buildings  
2 containing a Group M occupancy where one of the following conditions exists:

- 3 1. A Group M *fire area* exceeds 12,000 square feet (1115 m<sup>2</sup>).  
4 2. A Group M *fire area* is located more than three stories above *grade plane*.  
5 3. The combined area of all Group M *fire areas* on all floors, including any mezzanines, exceeds  
6 24,000 square feet (2230 m<sup>2</sup>).  
7

8 [W] 4. A Group M occupancy that is used for the display and sale of mattresses and upholstered  
9 furniture exceeds 5,000 square feet (465 m<sup>2</sup>).

10 [F] **903.2.7.1 High-piled storage.** An *automatic sprinkler system* shall be provided in  
11 accordance with the *International Fire Code* in all buildings of Group M where storage of  
12 merchandise is in high-piled or rack storage arrays.  
13

14 [F] **903.2.8 Group R.** An *automatic sprinkler system* installed in accordance with Section 903.3  
15 shall be provided throughout all buildings with a Group R *fire area*.  
16

17 **Exception:** Automatic sprinkler systems are not required in buildings complying with both the  
18 *International*

19 *Residential Code* and Chapter 5 of the *International Fire Code*.

20 [F] **903.2.9 Group S-1.** An *automatic sprinkler system* shall be provided throughout all buildings  
21 containing a Group S-1 occupancy where one of the following conditions exists:  
22

- 23 1. A Group S-1 *fire area* exceeds 12,000 square feet (1115 m<sup>2</sup>).  
24 2. A Group S-1 *fire area* is located more than three stories above *grade plane*.  
25  
26  
27  
28

3. The combined area of all Group S-1 *fire areas* on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m2).

4. A Group S-1 *fire area* used for the storage of commercial trucks or buses where the *fire area* exceeds 5,000 square feet (464 m2).

**[F] 903.2.9.1 Repair garages.** An *automatic sprinkler system* shall be provided throughout all buildings used as repair garages in accordance with Section 406, as shown:

1. Buildings having two or more *stories above grade plane*, including basements, with a *fire area* containing a repair garage exceeding 10,000 square feet (929 m2).

2. Buildings no more than one *story above grade plane*, with a *fire area* containing a repair garage exceeding 12,000 square feet (1115 m2).

3. Buildings with repair garages servicing vehicles parked in basements.

4. A Group S-1 *fire area* used for the repair of commercial trucks or buses where the *fire area* exceeds 5,000 square feet (464 m2).

**[F] 903.2.9.2 Bulk storage of tires.** Buildings and structures where the area for the storage of tires exceeds 20,000 cubic feet (566 m3) shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

**903.2.9.3 Liquor Warehouses.** An automatic sprinkler system shall be installed in liquor warehouses.

**Interpretation I903.2.9.3:** Stock rooms of retail liquor sales outlets are not liquor warehouses.

**[F] 903.2.10 Group S-2 enclosed parking garages.** An *automatic sprinkler system* shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.4 as follows:

1. Where the *fire area* of the enclosed parking garage exceeds 12,000 square feet (1115 m<sup>2</sup>); or
2. Where the enclosed parking garage is located beneath other groups.

**Exception:** Enclosed parking garages located beneath Group R-3 occupancies.

**[F] 903.2.10.1 Commercial parking garages.** An *automatic sprinkler system* shall be provided throughout buildings used for storage of commercial trucks or buses where the *fire area* exceeds 5,000 square feet (464 m<sup>2</sup>).

**[F] 903.2.11 Specific building areas and hazards.** In all occupancies an *automatic sprinkler system* shall be installed for building design or hazards in the locations set forth in Sections 903.2.11.1 through 903.2.11.6.

**Exception:** Groups R-3 and U.

**[F] 903.2.11.1 Stories without openings.** An *automatic sprinkler system* shall be installed throughout all *stories*, including basements, of all buildings where the floor area exceeds 1,500 square feet (139.4 m<sup>2</sup>) and where there is not provided at least one of the following types of *exterior wall* openings:

1. Openings below grade that lead directly to ground level by an exterior *stairway* complying with Section 1009 or an outside ramp complying with Section 1010. Openings shall be located in each 50 linear feet (15 240 mm), or fraction thereof, of *exterior wall* in the *story* on at least one



side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm).

2. Openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 m<sup>2</sup>) in each 50 linear feet (15 240 mm), or fraction thereof, of *exterior wall* in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm).

**[F] 903.2.11.1.1 Opening dimensions and access.** Openings shall have a minimum dimension of not less than 30 inches (762 mm). Such openings shall be accessible to the fire department from the exterior and shall not be obstructed in a manner that fire fighting or rescue cannot be accomplished from the exterior.

**[F] 903.2.11.1.2 Openings on one side only.** Where openings in a *story* are provided on only one side and the opposite wall of such *story* is more than 75 feet (22 860 mm) from such openings, the *story* shall be equipped throughout with an *approved automatic sprinkler system*, or openings as specified above shall be provided on at least two sides of the *story*.

**[F] 903.2.11.1.3 Basements.** Where any portion of a basement is located more than 75 feet (22 860 mm) from openings required by Section 903.2.11.1, the basement shall be equipped throughout with an *approved automatic sprinkler system*.

**[F] 903.2.11.2 Rubbish and linen chutes.** An *automatic sprinkler system* shall be installed at the top of rubbish and linen chutes and in their terminal rooms. Chutes extending through three or more floors shall have additional sprinkler heads installed within such chutes at alternate floors. Chute sprinklers shall be accessible for servicing.

**[F] 903.2.11.3 Buildings 55 feet or more in height.** An *automatic sprinkler system* shall be installed throughout buildings with a floor level having an *occupant load* of 30 or more that is located 55 feet (16 764 mm) or more above the lowest level of fire department vehicle access.

**Exceptions:**

1. Airport control towers.
2. Open parking structures.
3. Occupancies in Group F-2.

**[F] 903.2.11.4 Ducts conveying hazardous exhausts.** Where required by the *International Mechanical Code*, automatic sprinklers shall be provided in ducts conveying hazardous exhaust, or flammable or combustible materials.

**Exception:** Ducts in which the largest cross-sectional diameter of the duct is less than 10 inches (254 mm).

**[F] 903.2.11.5 Commercial cooking operations.** An *automatic sprinkler system* shall be installed in commercial kitchen exhaust hood and duct system where an *automatic sprinkler system* is used to comply with Section 904.

**[F] 903.2.11.6 Other required suppression systems.** In addition to the requirements of Section 903.2, the provisions indicated in Table 903.2.11.6 also require the installation of a fire suppression system for certain buildings and areas.

**903.2.11.7 Basement storage and sale of combustible materials.** An *automatic sprinkler system* shall be installed throughout basements that are used for storage or sale of combustible materials.

**Exceptions:**

1. Sprinklers are not required in portions of the basement not containing combustible materials and protected by a fire barrier with at least a one hour fire-resistance rating.

2. Sprinklers are not required in storage rooms meeting the following criteria:

2.1. The area of the room does not exceed 500 square feet (46.5 m<sup>2</sup>);

2.2. The room is protected by a fire barrier with at least a one hour fire-resistance rating;

2.3. The room contains no material classified as a flammable liquid, hazardous material or highly combustible material;

2.4. The room is served by exterior fire access or interior access by a one hour fire-resistance rated corridor.

2.5. No more than three such rooms are permitted in any one basement.

**903.2.11.8 Covered boat moorage.** Automatic sprinklers shall be provided for covered boat moorage exceeding 500 square feet (46.5m<sup>2</sup>) in projected roof area per pier, wharf or float. The sprinkler system shall be designed and installed in accordance with NFPA 13 for Extra Hazard Group 2 occupancy. If sprinklers are required by this section for covered moorage, the sprinklers shall be extended to any structure exceeding 500 square feet (46.5 m<sup>2</sup>) in projected roof area on the pier, wharf or float.

**[F] 903.2.12 During construction.** Automatic sprinkler systems required during construction, alteration and demolition operations shall be provided in accordance with Chapter 14 of the *International Fire Code*.

\*\*\*

1 [F] **903.3 Installation requirements.** *Automatic sprinkler systems* shall be designed and  
2 installed in accordance with Sections 903.3.1 through 903.3.6.

3 [F] **903.3.1 Standards.** Sprinkler systems shall be designed and installed in accordance with  
4 Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.

5 [F] **903.3.1.1 NFPA 13 sprinkler systems.** Where the provisions of this code require that a  
6 building or portion thereof be equipped throughout with an *automatic sprinkler system* in  
7 accordance with this section, sprinklers shall be installed throughout in accordance with NFPA  
8 13 and in accordance with rules promulgated by the building or fire code official, except as  
9 provided in Section 903.3.1.1.1.  
10

11 [F] **903.3.1.1.1 Exempt locations.** Automatic sprinklers shall not be required in the following  
12 rooms or areas where such rooms or areas are protected with an *approved* automatic fire  
13 detection system in accordance with Section 907.2 that will respond to visible or invisible  
14 particles of combustion. Sprinklers shall not be omitted from any room merely because it is  
15 damp, of fire-resistance-rated construction or contains electrical equipment.  
16

17 1. Any room where the application of water, or flame and water, constitutes a serious life or fire  
18 hazard, when approved by the fire code official.  
19

20 2. Any room or space where sprinklers are considered undesirable because of the nature of the  
21 contents, when *approved* by the fire code official.  
22

23 3. ~~((Generator and transformer rooms))~~ Transformer vaults separated from the remainder of the  
24 building by walls and floor/ceiling or roof/ceiling assemblies having a *fire-resistance rating* of  
25 not less than ((2)) three hours.  
26

1 4. Rooms or areas that are of noncombustible construction with wholly noncombustible contents.

2 5. Fire service access elevator machine rooms and machinery spaces.

3 **903.3.1.1.2 High-rise building sprinkler system design.** In high-rise buildings, combination  
4 standpipe/sprinkler risers using pipe at least 6 inches (152 mm) in diameter shall be used with the  
5 sprinkler system connected between standpipe risers. Shut-off valves, water-flow devices and  
6 check valves or pressure reducing valves shall be provided on each floor at the sprinkler system  
7 connection to each standpipe. Two four-way fire department connections serving the  
8 combination system shall be provided on separate streets well separated from each other. At least  
9 one of the fire department connections shall be connected to the riser above a riser isolation  
10 valve. Also see Section 905.3.6.

11  
12  
13 Where a mid-level fire pump is required by NFPA 14, two pumps with the same rating shall be  
14 installed.

15 Dry pipe sprinkler systems serving parking garages are permitted to use a single supply and one  
16 separate two-way fire department connection. The dry pipe sprinkler system shall be supplied by  
17 the on-site water tank.

18  
19 **[F] 903.3.1.2 NFPA 13R sprinkler systems.** (~~Where allowed in buildings of Group R, up to~~  
20 ~~and including four stories in height, a))~~Automatic sprinkler systems in Group R occupancies four  
21 stories in height or less shall be permitted to be installed throughout in accordance with NFPA  
22 13R and rules promulgated by the building or fire code official. NFPA 13R sprinkler systems are  
23 not allowed in mixed use residential buildings unless the only other occupancy is parking  
24

associated with the residential use, or the non-residential use is separated to create a separate building.

**[F] 903.3.1.2.1 Balconies and decks.** Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of *dwelling units* where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

**[F] 903.3.1.3 NFPA 13D sprinkler systems.** ~~((Where allowed, a))~~ Automatic sprinkler systems installed in one and two-family *dwelling*s and *townhouses*, where approved by the fire code official shall be installed throughout in accordance with NFPA 13D and rules promulgated by the building or fire code official.

**[F] 903.3.2 Quick-response and residential sprinklers.** Where automatic sprinkler systems are required by this code, quick-response or residential automatic sprinklers shall be installed in the following areas in accordance with Section 903.3.1 and their listings:

1. Throughout all spaces within a smoke compartment containing patient sleeping units in Group I-2 in accordance with this code.
2. *Dwelling units*, and *sleeping units* in Group R and I-1 occupancies.
3. Light-hazard occupancies as defined in NFPA 13.

1 **[F] 903.3.3 Obstructed locations.** Automatic sprinklers shall be installed (~~((with due regard to~~  
2 ~~obstructions that will delay activation or obstruct the water distribution pattern.))~~ in accordance  
3 with NFPA 13 obstruction criteria and the listing requirements of the sprinkler. Automatic  
4 sprinklers shall be installed in or under covered kiosks, displays, booths, concession stands, or  
5 equipment that exceeds 4 feet (1219 mm) in width and depth. Not less than a 3-foot (914 mm)  
6 clearance shall be maintained between automatic sprinklers and the top of piles of combustible  
7 fibers.  
8

9 **Exception:** Kitchen equipment under exhaust hoods protected with a fire-extinguishing system  
10 in accordance with Section 904.  
11

12 **[F] 903.3.4 Actuation.** *Automatic sprinkler systems* shall be automatically actuated unless  
13 specifically provided for in this code or in rules promulgated by the building or fire code official.

14 **[F] 903.3.5 Water supplies.** Water supplies for *automatic sprinkler systems* shall comply with  
15 this section and the standards referenced in Section 903.3.1. The potable water supply shall be  
16 protected against backflow in accordance with the requirements of this section and the  
17 ~~((*International*))~~ Uniform Plumbing Code.  
18

19 **[F] 903.3.5.1 Domestic services.** Both NFPA 13R and NFPA 13D sprinkler systems can be  
20 supplied by a domestic service (~~((Where the domestic service provides) the water supply for the~~  
21 ~~*automatic sprinkler system, the supply shall be*~~)) in accordance with this section.  
22

23 **[F] 903.3.5.1.1 Limited area sprinkler systems.** Limited area sprinkler systems serving fewer  
24 than 20 sprinklers on any single connection are permitted to be connected to the domestic service  
25  
26

where a wet automatic standpipe is not available. Limited area sprinkler systems connected to domestic water supplies shall comply with each of the following requirements:

1. Valves shall not be installed between the domestic water riser control valve and the sprinklers.

**Exception:** An *approved* indicating control valve supervised in the open position in accordance with Section 903.4.

2. The domestic service shall be capable of supplying the simultaneous domestic demand and the sprinkler demand required to be hydraulically calculated by NFPA 13, NFPA 13R or NFPA 13D.

**[F] 903.3.5((1)).2 ((Residential-e))Combination fire/domestic services.** A single combination water supply shall be allowed for all types of sprinkler systems provided that the domestic demand is added to the sprinkler demand ((as required by NFPA 13R)).

**903.3.5.3 Fire Service.** A fire service shall be allowed for all types of sprinkler systems.

**[F] 903.3.5((2))4 Secondary water supply.** A secondary on-site water supply providing the lesser of a net volume of 33,000 gallons (124 918 L) or an amount equal to the hydraulically calculated sprinkler demand, including the hose stream requirement((;)) in NFPA 13, shall be provided for all high-rise buildings ((assigned to Seismic Design Category C, D, E or F as determined by this code.)) The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.

**Exception:** Existing buildings including those undergoing substantial alteration.

**[F] 903.3.6 Hose threads.** Fire hose threads and fittings used in connection with *automatic sprinkler systems* shall be as prescribed by the fire code official.



**[F] 903.4 Sprinkler system supervision and alarms.** All valves controlling the water supply for *automatic sprinkler systems*, pumps, tanks, water levels and temperatures, critical air pressures and waterflow switches on all sprinkler systems shall be electrically supervised by a *listed* fire alarm control unit.

**Exceptions:**

1. *Automatic sprinkler systems* protecting one- and two-family *dwelling*s and townhouses if approved by the fire code official.
2. Limited area systems serving fewer than 20 sprinklers.
3. *Automatic sprinkler systems* installed in accordance with NFPA 13R where a common supply main is used to supply both domestic water and the *automatic sprinkler system*, and a separate shutoff valve for the *automatic sprinkler system* is not provided.
4. Jockey pump control valves that are sealed or locked in the open position.
5. Control valves to commercial kitchen hoods, paint spray booths or dip tanks that are sealed or locked in the open position.
6. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
7. Trim valves to pressure switches in dry, preaction and deluge sprinkler systems that are sealed or locked in the open position.

**[F] 903.4.1 Monitoring.** Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to ~~((an approved supervising station or, when approved by the fire code official, shall sound an audible signal at a constantly attended location.))~~ a central

1 station service that is listed in the current edition of the Underwriters Laboratories FIRE  
2 PROTECTION EQUIPMENT DIRECTORY under the category Central Station (UUFX) as a  
3 Full Service Company or as a Monitoring Company.

4 Fire alarm systems in high-rise buildings and Group I and Group A occupancies (other than A-5)  
5 shall be monitored by a central station service that is listed in the current edition of the  
6 Underwriters Laboratories FIRE PROTECTION EQUIPMENT DIRECTORY under the category  
7 Central Station (UUFX) as a Full Service Company or as a Fire Alarm Service–Local Company  
8 that subcontracts the monitoring, retransmission and associated record keeping and reporting to a  
9 listed Full Service Company or Monitoring Company. The listing shall indicate that the Full  
10 Service Company or Fire Alarm Service – Local Company provides service to the Seattle area.

11 **Exceptions:**

- 12
- 13 1. Underground key or hub valves in roadway boxes or any valve in underground vaults provided  
14 by the municipality or public utility are not required to be monitored.  
15
  - 16 2. Backflow prevention device test valves located in limited area sprinkler system supply piping  
17 shall be locked in the open position. In occupancies required to be equipped with a fire alarm  
18 system, the backflow preventer valves shall be electrically supervised by a tamper switch  
19 installed in accordance with NFPA 72 and separately annunciated.  
20

21 **[F] 903.4.2 Alarms.** *Approved* audible devices shall be connected to every *automatic sprinkler*  
22 *system*. Such sprinkler waterflow alarm devices shall be activated by waterflow equivalent to the  
23 flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall  
24

be provided on the exterior of the building in an *approved* location. Where a fire alarm system is installed, actuation of the *automatic sprinkler system* shall actuate the building fire alarm system.

**[F] 903.4.3 Floor control valves.** *Approved* supervised indicating control valves shall be provided at the point of connection to the riser on each floor in high-rise buildings, and at the point of connection to the riser on any combination sprinkler/standpipe riser in any building.

**[F] 903.5 Testing and maintenance.** Sprinkler systems shall be tested and maintained in accordance with the *International Fire Code*.

\*\*\*

## SECTION 905

### STANDPIPE SYSTEMS

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**[F] 905.2 Installation standard.** Standpipe systems shall be installed in accordance with this section, ~~((and))~~ NFPA 14 and rules promulgated by the building or fire code official.

**[F] 905.3 Required installations.** Standpipe systems shall be installed where required by Sections 905.3.1 through 905.3.7 and in the locations indicated in Sections 905.4, 905.5 and 905.6. Standpipe systems are allowed to be combined with *automatic sprinkler systems*.

**Exception:** Standpipe systems are not required in Group R-3 occupancies and townhouses.

**[F] 905.3.1 Height.** Class III standpipe systems shall be installed throughout buildings where the floor level of the highest *story* is located more than 30 feet (9144 mm) above the lowest level of fire department vehicle access, or where the floor level of the lowest *story* is located more than 30 feet (9144 mm) below the highest level of fire department vehicle access.

**Exceptions:**

1. Class I standpipes are allowed in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

2. Class I manual standpipes are allowed in *open parking garages* where the highest floor is located not more than 150 feet (45 720 mm) above the lowest level of fire department vehicle access.

3. Class I manual dry standpipes are allowed in *open parking garages* that are subject to freezing temperatures, provided that the hose connections are located as required for Class II standpipes in accordance with Section 905.5.

4. Class I standpipes are allowed in basements equipped throughout with an *automatic sprinkler system*.

5. In determining the lowest level of fire department vehicle access, it shall not be required to consider:

5.1. Recessed loading docks for four vehicles or less; and

5.2. Conditions where topography makes access from the fire department vehicle to the building impractical or impossible.

~~(([F] 905.3.2 Group A. Class I automatic wet standpipes shall be provided in nonsprinklered Group A buildings having an occupant load exceeding 1,000 persons.~~

**Exceptions:**

~~1. Open air seating spaces without enclosed spaces.~~

2. ~~Class I automatic dry and semiautomatic dry standpipes or manual wet standpipes are allowed in buildings where the highest floor surface used for human occupancy is 75 feet (22 860 mm) or less above the lowest level of fire department vehicle access.))~~

**[F] 905.3.2((3)) Covered mall buildings.** A *covered mall building* shall be equipped throughout with a Class I automatic or manual standpipe system ((~~where required by Section 905.3.1. Covered mall buildings not required to be equipped with a standpipe system by Section 905.3.1 shall be equipped with Class I hose connections connected to the *automatic sprinkler system* sized to deliver water at 250 gallons per minute (946.4 L/min) at the most hydraulically remote hose connection while concurrently supplying the *automatic sprinkler system* demand. The standpipe system shall be designed not to exceed a 50 pounds per square inch (psi) (345 kPa) residual pressure loss with a flow of 250 gallons per minute (946.4 L/min) from the fire department connection to the hydraulically most remote hose connection. Hose)) with hose connections ((~~shall be~~)) provided at each of the following locations:~~

1. Within the mall at the entrance to each *exit* passageway or *corridor*.
2. At each floor-level landing within enclosed stairways opening directly on the mall.
3. At exterior public entrances to the mall.
4. At other locations as necessary so that the distance to reach all portions of a tenant space does not exceed 200 feet (60 960 mm) from a hose connection.

~~(([F] 905.3.4 Stages. Stages greater than 1,000 square feet in area (93m2) shall be equipped with a Class III wet standpipe system with 1 1/2-inch and 2 1/2-inch (38 mm and 64 mm) hose connections on each side of the stage.~~

~~**Exception:** Where the building or area is equipped throughout with an *automatic sprinkler system*, a 1 1/2-inch (38 mm) hose connection shall be installed in accordance with NFPA 13 or in accordance with NFPA 14 for Class II or III standpipes.~~

~~**[F] 905.3.4.1 Hose and cabinet.** The 1 1/2-inch (38 mm) hose connections shall be equipped with sufficient lengths of 1 1/2-inch (38 mm) hose to provide fire protection for the stage area. Hose connections shall be equipped with an *approved* adjustable fog nozzle and be mounted in a cabinet or on a rack.))~~

**[F] 905.3.3((5)) Underground buildings.** Underground buildings shall be equipped throughout with a Class I automatic wet or manual wet standpipe system.

**[F] 905.3.4((6)) Helistops and heliports.** Buildings with a helistop or heliport that are equipped with a standpipe shall extend the standpipe to the roof level on which the helistop or heliport is located in accordance with Section 1107.5 of the *International Fire Code*.

**[F] 905.3.5((7)) Marinas and boatyards.** Standpipes in marinas and boatyards shall comply with Chapter 45 of the *International Fire Code*.

**905.3.6 High-rise building standpipes.** Standpipe risers in high-rise buildings shall be combination standpipe/sprinkler risers using a minimum pipe size of 6 inches (152 mm). Two 2-1/2-inch (64 mm) hose connections shall be provided on every floor level landing in every required stairway. Where pressure reduction valves (prv) are required, each hose connection shall be provided with its own prv. The system shall be designed to provide a minimum flow of 300 gpm (19 L/s) at a minimum pressure of 150 psi (1034 kPa) [maximum 205 psi (1379 kPa)] at

each standpipe connection, in addition to the flow and pressure requirements contained in NFPA

14.

**[F] 905.4 Location of Class I standpipe hose connections.** Class I standpipe hose connections shall be provided in all of the following locations:

1. In every required *stairway*, a hose connection shall be provided for each floor level above or below grade. Hose connections shall be located at an intermediate floor level landing between floors or the main floor landing, but shall be consistent throughout the building ((unless otherwise ~~approved by the fire code official~~)).

2. On each side of the wall adjacent to the *exit* opening of a *horizontal exit*.

**Exception:** Where floor areas adjacent to a *horizontal exit* are reachable from *exit stairway* hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the *horizontal exit*.

3. In every *exit* passageway, at the entrance from the *exit* passageway to other areas of a building.

**Exception:** Where floor areas adjacent to an *exit* passageway are reachable from *exit stairway* hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30 480 mm) of hose, a hose connection shall not be required at the entrance from the *exit* passageway to other areas of the building.

4. In covered mall buildings, adjacent to each exterior public entrance to the mall, ((and)) adjacent to each entrance from an *exit* passageway or *exit corridor* to the mall, at each floor-level landing within enclosed stairways opening directly onto the mall, and at other locations as

necessary so that the distance to reach all portions of a tenant space does not exceed 200 feet (60 960 mm) from a hose connection.

5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), ~~((each))~~ at least one standpipe shall be provided with a hose connection located either on the roof or at the highest landing of a *stairway* with *stair* access to the roof.~~((An a))~~ Additional hose connections shall be provided ((at the top of the most hydraulically remote standpipe for testing purposes)) so that all portions of the roof are within 200 feet of hose travel distance from a standpipe hose connection. The hose connections shall be at least 10 feet (3048 mm) from the roof edge, skylight, light well or other opening, unless protected by a 42-inch-high (1067 mm) guardrail or equivalent.

6. Where the most remote portion of a nonsprinklered floor or *story* is more than 150 feet (45 720 mm) of hose travel distance from a hose connection or the most remote portion of a sprinklered floor or *story* is more than 200 feet (60 960 mm) of hose travel distance from a hose connection, additional hose connections shall be provided that are accessed through protected enclosures. The protected enclosure shall be a corridor constructed as a smoke barrier from the exit enclosure to the standpipe connection. Additional hose connections in parking garages are not required to be accessed through or located in protected enclosures. ((the fire code official is authorized to require that additional hose connections be provided in approved locations.))

**[F] 905.4.1 Protection.** Risers and laterals of Class I standpipe systems not located within an enclosed *stairway* or pressurized enclosure shall be protected by a degree of *fire resistance* equal to that required for vertical enclosures in the building in which they are located.



**Exception:** In buildings equipped throughout with an *approved automatic sprinkler system*, laterals that are not located within an enclosed *stairway* or pressurized enclosure are not required to be enclosed within fire-resistance-rated construction.

**[F] 905.4.2 Interconnection.** In buildings where more than one standpipe is provided, the standpipes shall be interconnected in accordance with NFPA 14.

**[F] 905.5 Location of Class II standpipe hose connections.** Class II standpipe hose connections shall be accessible and located so that all portions of the building are within 30 feet (9144 mm) of a nozzle attached to 100 feet (30 480 mm) of hose.

~~(([F] 905.5.1 Groups A-1 and A-2. In Group A-1 and A-2 occupancies with occupant loads of more than 1,000, hose connections shall be located on each side of any stage, on each side of the rear of the auditorium, on each side of the balcony and on each tier of dressing rooms.))~~

**[F] 905.5.1((2)) Protection.** Fire-resistance-rated protection of risers and laterals of Class II standpipe systems is not required.

**[F] 905.5.2((3)) Class II system 1-inch hose.** A minimum 1-inch (25 mm) hose shall be permitted to be used for hose stations in light-hazard occupancies where investigated and *listed* for this service and where *approved* by the fire code official.

**[F] 905.6 Location of Class III standpipe hose connections.** Class III standpipe systems shall have hose connections located as required for Class I standpipes in Section 905.4 and shall have Class II hose connections as required in Section 905.5.

**[F] 905.6.1 Protection.** Risers and laterals of Class III standpipe systems shall be protected as required for Class I systems in accordance with Section 905.4.1.

**[F] 905.6.2 Interconnection.** In buildings where more than one Class III standpipe is provided, the standpipes shall be interconnected in accordance with NFPA 14.

~~(([F] 905.7 Cabinets. Cabinets containing fire-fighting equipment such as standpipes, fire hoses, fire extinguishers or fire department valves shall not be blocked from use or obscured from view.~~

~~**[F] 905.7.1 Cabinet equipment identification.** Cabinets shall be identified in an *approved* manner by a permanently attached sign with letters not less than 2 inches (51 mm) high in a color that contrasts with the background color, indicating the equipment contained therein.~~

**Exceptions:**

~~1. Doors not large enough to accommodate a written sign shall be marked with a permanently attached pictogram of the equipment contained therein.~~

~~2. Doors that have either an *approved* visual identification clear glass panel or a complete glass door panel are not required to be marked.~~

~~**[F] 905.7.2 Locking cabinet doors.** Cabinets shall be unlocked.~~

**Exceptions:**

~~1. Visual identification panels of glass or other *approved* transparent frangible material that is easily broken and allows access.~~

~~2. *Approved* locking arrangements.~~

~~3. Group I-3.))~~

**[F] 905.7((8)) Dry standpipes.** Dry standpipes shall not be installed.

**Exception:** Where subject to freezing and in accordance with NFPA 14.

**[F] 905.8((9)) Valve supervision.** Valves controlling water supplies shall be supervised in the open position so that a change in the normal position of the valve will generate a supervisory signal at the supervising station required by Section 903.4. Where a fire alarm system is provided, a signal shall also be transmitted to the control unit.

**Exceptions:**

1. Valves ~~((to underground key or hub valves in roadway boxes))~~ provided by the municipality or public utility do not require supervision.
2. Valves locked in the normal position and inspected as provided in this code in buildings not equipped with a fire alarm system and not provided with monitoring by a central station service.

**[F] 905.9((10)) During construction.** Standpipe systems required during construction and demolition operations shall be provided in accordance with Section 3311.

## SECTION 906

### PORTABLE FIRE EXTINGUISHERS

**[F] 906.1 Where required.** Portable fire extinguishers shall be installed in the following locations. 1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.

~~((Exception: In new and existing Group A, B and E occupancies equipped throughout with quick response sprinklers, portable fire extinguishers shall be required only in locations specified in Items 2 through 6.))~~

2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or combustible liquids are stored, used or dispensed.

4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 1415.1 of the *International Fire Code*.

5. Where required by the *International Fire Code* sections indicated in Table 906.1.

6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

\*\*\*

**[F] 906.2 General requirements.** Portable fire extinguishers shall be selected, installed and maintained in accordance with this section and NFPA 10 by individuals who possess the proper certification from the fire code official.

**Exceptions:**

1. The travel distance to reach an extinguisher shall not apply to the spectator seating portions of Group A-5 occupancies.

2. Thirty-day inspections shall not be required and maintenance shall be allowed to be once every three years for dry-chemical or halogenated agent portable fire extinguishers that are supervised by a *listed* and *approved* electronic monitoring device, provided that all of the following conditions are met:

2.1. Electronic monitoring shall confirm that extinguishers are properly positioned, properly charged and unobstructed.

2.2. Loss of power or circuit continuity to the electronic monitoring device shall initiate a trouble signal.

2.3. The extinguishers shall be installed inside of a building or cabinet in a noncorrosive environment.

2.4. Electronic monitoring devices and supervisory circuits shall be tested every three years when extinguisher maintenance is performed.

2.5. A written log of required hydrostatic test dates for extinguishers shall be maintained by the owner to verify that hydrostatic tests are conducted at the frequency required by NFPA 10.

3. In Group I-3, portable fire extinguishers shall be permitted to be located at staff locations.

**[F] 906.3 Size and distribution.** The size and distribution of portable fire extinguishers shall be in accordance with Sections 906.3.1 through 906.3.4.

**[F] 906.3.1 Class A fire hazards.** The minimum sizes and distribution of portable fire extinguishers for occupancies that involve primarily Class A fire hazards shall comply with Table 906.3(1).

**[F] 906.3.2 Class B fire hazards.** Portable fire extinguishers for occupancies involving flammable or combustible liquids with depths less than or equal to 0.25-inch (6.35 mm) shall be selected and placed in accordance with Table 906.3(2).

Portable fire extinguishers for occupancies involving flammable or combustible liquids with a depth of greater than 0.25-inch (6.35 mm) shall be selected and placed in accordance with NFPA 10.

**[F] 906.3.3 Class C fire hazards.** Portable fire extinguishers for Class C fire hazards shall be selected and placed on the basis of the anticipated Class A or B hazard.

[F] **906.3.4 Class D fire hazards.** Portable fire extinguishers for occupancies involving combustible metals shall be selected and placed in accordance with NFPA 10.

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## SECTION 907

### FIRE ALARM AND DETECTION SYSTEMS

[F] **907.1 General.** This section covers the application, installation, performance and maintenance of fire alarm systems and their components. All fire alarm and fire detection systems shall be designed, installed and maintained in accordance with NFPA 72 except that the location of initiating devices shall comply with Section 907 of the *International Fire Code*.  
For the purposes of this Section 907, fire walls not located on a property line shall not create a separate building. Buildings required by this section to be provided with a fire alarm system shall be provided with a single fire alarm system.

**Exception:** A single system is not required in existing buildings that are being increased in size and the existing fire alarm system is unable to expand into the new space. In those cases multiple systems shall be arranged as described below for nonrequired fire alarm systems.

Buildings not required by this section to be provided with a fire alarm system may be provided with multiple partial fire alarm systems provided:

1. The systems are connected so that all systems simultaneously activate alarm notification appliances upon a signal from any of the fire alarm systems in the building, and
2. The location of each system's annunciator panel (or main panel) is also provided with annunciator panels with reset capability for every other system in the building.

1 **[F] 907.1.1 Construction documents.** *Construction documents* for fire alarm systems shall be of  
2 sufficient clarity to indicate the location, nature and extent of the work proposed and show in  
3 detail that it will conform to the provisions of this code, the *International Fire Code*, and  
4 relevant laws, ordinances, rules and regulations, as determined by the fire code official.

5 **[F] 907.1.2 Fire alarm shop drawings.** Shop drawings for fire alarm systems shall be submitted  
6 for review and approval prior to system installation, and shall include, but not be limited to, all of  
7 the following:

- 8 1. A floor plan that indicates the use of all rooms.
- 9 2. Locations of alarm-initiating devices.
- 10 3. Locations of alarm notification appliances, including candela ratings for visible alarm
- 11 notification appliances.
- 12 4. Location of fire alarm control unit, transponders and notification power supplies.
- 13 5. Annunciators.
- 14 6. Power connection.
- 15 7. Battery calculations.
- 16 8. Conductor type and sizes.
- 17 9. Voltage drop calculations.
- 18 10. Manufacturers' data sheets indicating model numbers and listing information for equipment,
- 19 devices and materials.
- 20 11. Details of ceiling height and construction.
- 21 12. The interface of fire safety control functions.
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13. Classification of the supervising station.

**[F] 907.1.3 Equipment.** Systems and components shall be *listed* and *approved* for the purpose for which they are installed.

**[F] 907.2 Where required—new buildings and structures.** An *approved* fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.23 and provide occupant notification in accordance with Section 907.5, unless other requirements are provided by another section of this code.

A minimum of one manual fire alarm box shall be provided in an *approved* location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or waterflow detection devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed.

**Exceptions:**

1. The manual fire alarm box is not required for fire alarm systems dedicated to elevator recall control and supervisory service.

2. The manual fire alarm box is not required for Group R-2 occupancies unless required by the fire code official to provide a means for fire watch personnel to initiate an alarm during a sprinkler system impairment event. Where provided, the manual fire alarm box shall not be located in an area that is accessible to the public.

**[F] 907.2.1 Group A.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies having an *occupant*



1 *load* of 300 or more. Portions of Group E occupancies occupied for assembly purposes shall be  
2 provided with a fire alarm system as required for the Group E occupancy.

3 **Exception:** Manual fire alarm boxes are not required where the building is equipped throughout  
4 with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 and the  
5 occupant notification appliances will activate throughout the notification zones upon sprinkler  
6 waterflow.  
7

8 **[F] 907.2.1.1 System initiation in Group A occupancies with an occupant load of 1,000 or**  
9 **more.** Activation of the fire alarm in Group A occupancies with an *occupant load* of 1,000 or  
10 more shall initiate a signal using an emergency voice/alarm communications system in  
11 accordance with Section 907.5.2.2.  
12

13 **Exception:** Where *approved*, the prerecorded announcement is allowed to be manually  
14 deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live  
15 voice announcement from an *approved, constantly attended location*.  
16

17 **[F] 907.2.2 Group B.** A manual fire alarm system that activates the occupant notification system  
18 in accordance with Section 907.6 shall be installed in Group B occupancies where one of the  
19 following conditions exists:

- 20 1. The combined Group B *occupant load* of all floors is 500 or more.  
21 2. The Group B *occupant load* is more than 100 persons above or below the lowest *level of exit*  
22 *discharge*.  
23 3. The Group B *fire area* contains a Group B ambulatory health care facility.  
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**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler waterflow.

**[F] 907.2.2.1 Group B ambulatory health care facilities.** Fire areas containing Group B ambulatory health care facilities shall be provided with an electronically supervised automatic smoke detection system installed within the ambulatory health care facility and in public use areas outside of tenant spaces, including public *corridors* and elevator lobbies.

**Exception:** Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, provided the occupant notification appliances will activate throughout the notification zones upon sprinkler waterflow.

**[F] 907.2.3 Group E.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group E occupancies. When *automatic sprinkler systems* or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

**Exceptions:**

1. A manual fire alarm system is not required in Group E occupancies with an *occupant load* of less than 50.

2. Manual fire alarm boxes are not required in Group E occupancies where all of the following apply:

2.1. Interior *corridors* are protected by smoke detectors.

2.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by *heat detectors* or other *approved* detection devices.

2.3. Shops and laboratories involving dusts or vapors are protected by *heat detectors* or other *approved* detection devices.

2.4. The capability to activate the evacuation signal from a central point is provided.

2.5. In buildings where normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from where a general evacuation alarm can be sounded, except in locations specifically designated by the fire code official.

3. Manual fire alarm boxes shall not be required in Group E occupancies where the building is equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1, the notification appliances will activate on sprinkler waterflow and manual activation is provided from a normally occupied location.

**[F] 907.2.4 Group F.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group F occupancies where both of the following conditions exist:

1. The Group F occupancy is two or more *stories* in height; and
2. The Group F occupancy has a combined *occupant load* of 500 or more above or below the lowest *level of exit discharge*.

**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 and the

occupant notification appliances will activate throughout the notification zones upon sprinkler waterflow.

**[F] 907.2.5 Group H.** A manual fire alarm system that activates the occupant notification system shall be installed in Group H-5 occupancies and in occupancies used for the manufacture of organic coatings. An automatic smoke detection system that activates the occupant notification system shall be installed for *highly toxic* gases, organic peroxides and oxidizers in accordance with Chapters 37, 39 and 40, respectively, of the *International Fire Code*.

**[F] 907.2.6 Group I.** A manual fire alarm system that activates the occupant notification system shall be installed in Group I occupancies. An automatic smoke detection system that activates the occupant notification system shall be provided in accordance with Sections 907.2.6.1, 907.2.6.2 and 907.2.6.3.3.

**Exceptions:**

1. Manual fire alarm boxes in resident or patient sleeping areas of Group I-1 and I-2 occupancies shall not be required at *exits* if located at all nurses' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.4.2 are not exceeded.

2. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is *approved* by the fire code official.

**[F] 907.2.6.1 Group I-1.** An automatic smoke detection system shall be installed in *corridors*, waiting areas open to *corridors* and *habitable spaces* other than *sleeping units* and kitchens. The system shall be activated in accordance with Section 907.5.

**Exceptions:**

1. Smoke detection in *habitable spaces* is not required where the facility is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

2. Smoke detection is not required for exterior balconies.

**[F] 907.2.6.1.1 Smoke alarms.** Single- and multiple- station smoke alarms shall be installed in accordance with Section 907.2.11.

**[F] 907.2.6.2 Group I-2.** An automatic smoke detection system shall be installed in *corridors* in nursing homes (both intermediate care and skilled nursing facilities), detoxification facilities and spaces permitted to be open to the *corridors* by Section 407.2. The system shall be activated in accordance with Section 907.5. Hospitals shall be equipped with smoke detection as required in Section 407.

**Exceptions:**

1. *Corridor* smoke detection is not required in smoke compartments that contain patient sleeping units where such units are provided with smoke detectors that comply with UL 268. Such detectors shall provide a visual display on the *corridor* side of each patient *sleeping unit* and shall provide an audible and visual alarm at the nursing station attending each unit.

2. *Corridor* smoke detection is not required in smoke compartments that contain patient *sleeping units* where patient *sleeping unit* doors are equipped with automatic door-closing devices with integral smoke detectors on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function.

1 [F] **907.2.6.3 Group I-3 occupancies.** Group I-3 occupancies shall be equipped with a manual  
2 fire alarm system and automatic smoke detection system installed for alerting staff.

3 [F] **907.2.6.3.1 System initiation.** Actuation of an automatic fire-extinguishing system, a manual  
4 fire alarm box or a fire detector shall initiate an *approved* fire alarm signal which automatically  
5 notifies staff.

6  
7 [F] **907.2.6.3.2 Manual fire alarm boxes.** Manual fire alarm boxes are not required to be located  
8 in accordance with Section 907.4.2 where the fire alarm boxes are provided at staff-attended  
9 locations having direct supervision over areas where manual fire alarm boxes have been omitted.

10 **907.2.6.3.2.1 Manual fire alarm boxes in detainee areas.** Manual fire alarm boxes are allowed  
11 to be locked in areas occupied by detainees, provided that staff members are present within the  
12 subject area and have keys readily available to operate the manual fire alarm boxes.

13  
14 [F] **907.2.6.3.3 Automatic smoke detection system.** An automatic smoke detection system shall  
15 be installed throughout resident housing areas, including *sleeping units* and contiguous day  
16 rooms, group activity spaces and other common spaces normally accessible to residents.

17  
18 **Exceptions:**

19 1. Other *approved* smoke detection arrangements providing equivalent protection, including, but  
20 not limited to, placing detectors in exhaust ducts from cells or behind protective guards *listed* for  
21 the purpose, are allowed when necessary to prevent damage or tampering.

22 2. *Sleeping units* in Use Conditions 2 and 3 as described in Section 308.  
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3. Smoke detectors are not required in *sleeping units* with four or fewer occupants in smoke compartments that are equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

**[F] 907.2.7 Group M.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group M occupancies where one of the following conditions exists:

1. The combined Group M *occupant load* of all floors is 500 or more persons.
2. The Group M *occupant load* is more than 100 persons above or below the lowest *level of exit discharge*.

**Exceptions:**

1. A manual fire alarm system is not required in *covered mall buildings* complying with Section 402.
2. Manual fire alarm boxes are not required where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 and the occupant notification appliances will automatically activate throughout the notification zones upon sprinkler waterflow.

~~((**[F] 907.2.7.1 Occupant notification.** During times that the building is occupied, the initiation of a signal from a manual fire alarm box or from a waterflow switch shall not be required to activate the alarm notification appliances when an alarm signal is activated at a *constantly attended location* from which evacuation instructions shall be initiated over an emergency voice/alarm communication system installed in accordance with Section 907.5.2.2.))~~

**[W] [F] 907.2.8 Group R-1.** Fire alarm systems, ~~((and))~~ smoke alarms and carbon monoxide alarms shall be installed in Group R-1 occupancies as required in Sections 907.2.8.1 through ~~((907.2.8.3))~~ 907.2.8.4.

**[F] 907.2.8.1 Manual fire alarm system.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-1 occupancies.

**Exceptions:**

1. A manual fire alarm system is not required in buildings not more than two *stories* in height where all individual *sleeping units* and contiguous *attic* and crawl spaces to those units are separated from each other and public or common areas by at least 1-hour *fire partitions* and each individual *sleeping unit* has an *exit* directly to a *public way, exit court* or *yard*.

~~((2. Manual fire alarm boxes are not required throughout the building when all of the following conditions are met:~~

~~2.1. The building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2;~~

~~2.2. The notification appliances will activate upon sprinkler waterflow; and~~

~~2.3. At least one manual fire alarm box is installed at an *approved location*.)~~

**[F] 907.2.8.2 Automatic ~~((smoke))~~ detection system.** An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed throughout all interior *corridors* serving *sleeping units*. Automatic heat detectors shall be



provided in any unsprinklered interior areas outside guestrooms other than attics and crawl spaces.

**Exception:** An automatic smoke detection system is not required in buildings that do not have interior *corridors* serving *sleeping units* and where each *sleeping unit* has a *means of egress* door opening directly to an *exit* or to an exterior *exit access* that leads directly to an *exit*.

**[F] 907.2.8.3 Smoke alarms.** Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.11.

**[W] 907.2.8.4. Carbon monoxide alarms.** For new construction, an approved carbon monoxide alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the immediate vicinity of the bedroom in dwelling and sleeping units. For studio type units that do not have a sleeping area separate from the unit itself, the carbon monoxide alarm shall be placed inside the sleeping or dwelling unit. In a building where a tenancy exists, the tenant shall maintain the carbon monoxide alarm as specified by the manufacturer including replacement of the batteries.

**[W] 907.2.8.4.1 Existing sleeping units.** Existing sleeping units shall be equipped with carbon monoxide alarms by July 1, 2011.

**[W] 907.2.8.4.2 Alarm requirements.** Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with NFPA 720 and the manufacturer's installation instructions.

1 **[F] 907.2.9 Group R-2.** Fire alarm systems, ~~((and))~~ smoke alarms, automatic heat detection  
2 systems and carbon monoxide alarms shall be installed in Group R-2 occupancies as required in  
3 Sections 907.2.9.1 ~~((and 907.9.2))~~ through 907.2.9.4.

4 **[F] 907.2.9.1 Manual fire alarm system.** A manual fire alarm system that activates the occupant  
5 notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies  
6 where:  
7

- 8 1. Any *dwelling unit* or *sleeping unit* is located three or more *stories* above the lowest *level of*  
9 *exit discharge*;
- 10 2. Any *dwelling unit* or *sleeping unit* is located more than one *story* below the highest *level of*  
11 *exit discharge* of *exits* serving the *dwelling unit* or *sleeping unit*; or  
12
- 13 3. The building contains more than 16 *dwelling units* or *sleeping units*.

14 **[W] 4.** The building contains a boarding home licensed by the state of Washington.

15 **Exceptions:**

- 16 1. A fire alarm system is not required in buildings not more than two *stories* in height where all  
17 *dwelling units* or *sleeping units* and contiguous *attic* and *crawl* spaces are separated from each  
18 other and public or common areas by at least 1-hour *fire partitions* and each *dwelling unit* or  
19 *sleeping unit* has an *exit* directly to a *public way*, *exit court* or *yard*.

20  
21 ~~((2. Manual fire alarm boxes are not required where the building is equipped throughout with an~~  
22 ~~*automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and the~~  
23 ~~occupant notification appliances will automatically activate throughout the notification zones~~  
24 ~~upon a sprinkler waterflow.))~~  
25  
26  
27  
28

1 2. A fire alarm system is not required in townhouses where approved by the fire code official.

2 3. A fire alarm system is not required in buildings that do not have interior *corridors* serving  
3 *dwelling units* and are protected by an *approved automatic sprinkler system* installed in  
4 accordance with Section 903.3.1.1 or 903.3.1.2, provided that *dwelling units* either have a *means*  
5 *of egress* door opening directly to an exterior *exit access* that leads directly to the *exits* or are  
6 served by open-ended *corridors* designed in accordance with Section 1026.6, Exception 4.  
7

8 [W] 4. In boarding homes licensed by the state of Washington, manual fire alarm boxes in  
9 resident sleeping areas shall not be required at exits if located at all constantly attended staff  
10 locations, provided such staff locations are visible, continuously accessible, located on each  
11 floor, and positioned so no portion of the story exceeds a horizontal travel distance of 200 feet to  
12 a manual fire alarm box.  
13

14 **[F] 907.2.9.2 Smoke alarms.** Single- and multiple-station smoke alarms shall be installed in  
15 accordance with Section 907.2.11.  
16

17 **[W] 907.2.9.3 Automatic heat detection.** An automatic heat detection system that activates the  
18 occupant notification system in accordance with Section 907.6 shall be installed throughout all  
19 unsprinklered interior areas outside dwelling units other than attics and crawl spaces.

20 **[W] 907.2.9.4 Carbon monoxide alarms.** For new construction, an approved carbon monoxide  
21 alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the  
22 immediate vicinity of the bedroom in dwelling and sleeping units. For studio type units that do  
23 not have a sleeping area separate from the unit itself, the carbon monoxide alarm shall be placed  
24 inside the sleeping or dwelling unit. In a building where a tenancy exists, the tenant shall  
25

maintain the carbon monoxide alarm as specified by the manufacturer including replacement of the batteries.

**[W] 907.2.9.4.1 Existing dwelling units.** Existing dwelling units shall be equipped with carbon monoxide alarms by July 1, 2011.

**[W] 907.2.10 Group R-3.** Carbon monoxide alarms shall be installed in Group R-3 occupancies as required in Sections 907.2.10.1 through 907.2.10.3.

**[W] 907.2.10.1 Carbon monoxide alarms.** For new construction, an approved carbon monoxide alarm shall be installed by January 1, 2011, outside of each separate sleeping area in the immediate vicinity of the bedroom in dwelling units. In a building where a tenancy exists, the tenant shall maintain the carbon monoxide alarm as specified by the manufacturer including replacement of the batteries.

**[W] 907.2.10.2 Existing dwelling units.** Existing dwelling units shall be equipped with carbon monoxide alarms by July 1, 2011.

**Exception:** Owner-occupied Group R-3 residences legally occupied prior to July 1, 2010.

**[W] 907.2.10.3 Alarm requirements.** Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with NFPA 720 and the manufacturer's installation instructions.

~~**[[F] 907.2.10 Group R-4.** Fire alarm systems and smoke alarms shall be installed in Group R-4 occupancies as required in Sections 907.2.10.1 through 907.2.10.3.~~

~~[F] 907.2.10.1 Manual fire alarm system.~~ A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-4 occupancies.

**Exceptions:**

1. A manual fire alarm system is not required in buildings not more than two *stories* in height where all individual *sleeping units* and contiguous *attic* and crawl spaces to those units are separated from each other and public or common areas by at least 1 hour *fire partitions* and each individual *sleeping unit* has an *exit* directly to a *public way, exit court* or *yard*.

2. Manual fire alarm boxes are not required throughout the building when the following conditions are met:

2.1. The building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2;

2.2. The notification appliances will activate upon sprinkler waterflow; and

2.3. At least one manual fire alarm box is installed at an *approved* location.

3. Manual fire alarm boxes in resident or patient sleeping areas shall not be required at *exits* where located at all nurses' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.4.2.1 are not exceeded.

~~[F] 907.2.10.2 Automatic smoke detection system.~~ An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed in

~~corridors, waiting areas open to corridors and habitable spaces other than sleeping units and  
kitchens.~~

**Exceptions:**

~~1. Smoke detection in habitable spaces is not required where the facility is equipped throughout  
with an automatic sprinkler system installed in accordance with Section 903.3.1.1.~~

~~2. An automatic smoke detection system is not required in buildings that do not have interior  
corridors serving sleeping units and where each sleeping unit has a means of egress door  
opening directly to an exit or to an exterior exit access that leads directly to an exit.~~

~~[F] 907.2.10.3 Smoke alarms. Single and multiple station smoke alarms shall be installed in  
accordance with Section 907.2.11.))~~

**[F] 907.2.11 Single- and multiple-station smoke alarms.** *Listed* single- and multiple-station  
smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.11.1  
through 907.2.11.4 and NFPA 72.

**[F] 907.2.11.1 Group R-1.** Single- or multiple-station smoke alarms shall be installed in all of  
the following locations in Group R-1:

1. In sleeping areas.
2. In every room in the path of the *means of egress* from the sleeping area to the door leading  
from the *sleeping unit*.
3. In each *story* within the *sleeping unit*, including basements. For *sleeping units* with split levels  
and without an intervening door between the adjacent levels, a smoke alarm installed on the

upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.

**[F] 907.2.11.2 Groups R-2, R-3(~~, R-4~~) and I-1.** Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3(~~, R-4~~) and I-1 regardless of *occupant load* at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.

2. In each room used for sleeping purposes.

**Exception:** Single- or multiple-station smoke alarms in Group I-1 shall not be required where smoke detectors are provided in the sleeping rooms as part of an automatic smoke detection system.

3. In each *story* within a *dwelling unit*, including basements but not including crawl spaces and uninhabitable *attics*. In *dwelling*s or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.

**[F] 907.2.11.3 Interconnection.** Where more than one smoke alarm is required to be installed within an individual *dwelling unit* or *sleeping unit* in Group R-1, R-2(~~(;)~~) or R-3(~~(or R-4)~~), the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

1 **[F] 907.2.11.4 Power source.** In new construction, required smoke alarms shall receive their  
2 primary power from the building wiring where such wiring is served from a commercial source  
3 and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not  
4 equipped with battery backup shall be connected to an emergency ((~~electrical~~)) power system.  
5 Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and  
6 without a disconnecting switch other than as required for overcurrent protection.  
7

8 **Exception:** Smoke alarms are not required to be equipped with battery backup where they are  
9 connected to an emergency ((~~electrical~~)) power system.

10 **[F] 907.2.12 Special amusement buildings.** An automatic smoke detection system shall be  
11 provided in *special amusement buildings* in accordance with Sections 907.2.12.1 through  
12 907.2.12.3.  
13

14 **[F] 907.2.12.1 Alarm.** Activation of any single smoke detector, the *automatic sprinkler system* or  
15 any other automatic fire detection device shall immediately sound an alarm at the building at a  
16 *constantly attended location* from which emergency action can be initiated, including the  
17 capability of manual initiation of requirements in Section 907.2.12.2.  
18

19 **[F] 907.2.12.2 System response.** The activation of two or more smoke detectors, a single smoke  
20 detector equipped with an alarm verification feature, the *automatic sprinkler system* or other  
21 *approved* fire detection device shall automatically:  
22

- 23 1. Cause illumination of the *means of egress* with light of not less than 1 foot-candle (11 lux) at  
24 the walking surface level;
- 25 2. Stop any conflicting or confusing sounds and visual distractions;
- 26



3. Activate an *approved* directional *exit* marking that will become apparent in an emergency; and

4. Activate a prerecorded message, audible throughout the *special amusement building*, instructing patrons to proceed to the nearest *exit*. Alarm signals used in conjunction with the prerecorded message shall produce a sound which is distinctive from other sounds used during normal operation.

**[F] 907.2.12.3 Emergency voice/alarm communication system.** An emergency voice/alarm communication system, which is also allowed to serve as a public address system, shall be installed in accordance with Section 907.5.2.2 and be audible throughout the entire *special amusement building*.

**[F] 907.2.13 High-rise buildings.** Buildings with a floor used for human occupancy located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall be provided with an automatic smoke detection system in accordance with Section 907.2.13.1, a fire department communication system in accordance with Section 907.2.13.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

**Exceptions:**

1. Airport traffic control towers in accordance with Sections 907.2.22 and 412.

2. *Open parking garages* in accordance with Section 406.3.

3. Buildings with an occupancy in Group A-5 in accordance with Section 303.1.

4. Low-hazard special occupancies in accordance with Section 503.1.1.

~~((5. Buildings with an occupancy in Group H-1, H-2 or H-3 in accordance with Section 415.))~~

1 5. ~~((6.))~~ In Group I-1 and I-2 occupancies, the alarm shall sound at a *constantly attended location*  
2 and general occupant notification shall be broadcast by the emergency voice/alarm  
3 communication system.

4 **[F] 907.2.13.1 Automatic smoke detection.** Automatic smoke detection in high-rise buildings  
5 shall be in accordance with Sections 907.2.13.1.1 and 907.2.13.1.2.

6 **[F] 907.2.13.1.1 Area smoke detection.** Area smoke detectors shall be provided in accordance  
7 with this section. Smoke detectors shall be connected to an automatic fire alarm system. The  
8 activation of any detector required by this section, other than duct smoke detectors, shall operate  
9 the emergency voice/alarm communication system in accordance with Section 907.5.2.2. Smoke  
10 detectors shall be located as follows:  
11

12 1. In each ~~((mechanical equipment,))~~ electrical, transformer, telephone equipment or similar  
13 room which is not provided with sprinkler protection.

14 2. In each elevator machine room and in elevator lobbies.

15 3. Within 5 feet (1524 mm) of doors exiting into stairways that are are pressurized stairways.

16 **Exception:** If such locations are within parking garages, smoke detectors are not required.

17 **[F] 907.2.13.1.2 Duct smoke detection.** Duct smoke detectors complying with Section 907.3.1  
18 shall be located as follows:

19 1. In the main return air and exhaust air plenum of each air-conditioning system having a  
20 capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m<sup>3</sup>/s). Such detectors shall be  
21 located in a serviceable area downstream of the last duct inlet.  
22  
23  
24  
25  
26  
27  
28

2. At each connection to a vertical duct or riser serving two or more stories from a return air duct or plenum of an air-conditioning system. In Group R-1 and R-2 occupancies, a smoke detector is allowed to be used in each return air riser carrying not more than 5,000 cfm (2.4 m<sup>3</sup>/s) and serving not more than 10 air-inlet openings.

3. Two smoke detectors are required for stairway and elevator hoistway pressurization air intakes arranged to automatically shut down the pressurization fans only when both detectors activate.

The detectors shall be located downstream of each fan and shall be connected to the fire alarm as a supervisory signal.

**[F] 907.2.13.2 Fire department communication system.** Where a wired communication system is *approved* in lieu of a radio coverage system in accordance with Section 510 of the *International Fire Code*, the wired fire department communication system shall be designed and installed in accordance with NFPA72 and shall operate between a fire command center complying with Section 911, elevators, elevator lobbies, emergency and legally required standby power rooms, fire pump rooms, *areas of refuge* and inside enclosed *exit stairways*. The fire department communication device shall be provided at each floor level within the enclosed *exit stairway*. Eight portable handsets for the communication system shall be provided in the fire command center.

**[F] 907.2.14 Atriums connecting more than two stories.** A fire alarm system shall be installed in occupancies with an atrium that connects more than two *stories*, with smoke detection installed throughout the atrium. The system shall be activated in accordance with Section 907.5.

Such occupancies in Group A, E or M shall be provided with an emergency voice/alarm communication system complying with the requirements of Section 907.5.2.2.

**[F] 907.2.15 High-piled combustible storage areas.** An automatic smoke detection system shall be installed throughout high-piled combustible storage areas where required by Section 2306.5 of the *International Fire Code*.

**[F] 907.2.16 Aerosol storage uses.** Aerosol storage rooms and general-purpose warehouses containing aerosols shall be provided with an *approved* manual fire alarm system where required by the *International Fire Code*.

**[F] 907.2.17 Lumber, wood structural panel and veneer mills.** Lumber, wood structural panel and veneer mills shall be provided with a manual fire alarm system.

**[F] 907.2.18 Underground buildings with smoke control systems.** Where a smoke control system is installed in an underground building in accordance with this code, automatic smoke detectors shall be provided in accordance with Section 907.2.18.1.

**[F] 907.2.18.1 Smoke detectors.** A minimum of one smoke detector *listed* for the intended purpose shall be installed in the following areas:

1. Mechanical equipment, electrical, transformer, telephone equipment, elevator machine or similar rooms.
2. Elevator lobbies.
3. The main return and exhaust air plenum of each air-conditioning system serving more than one *story* and located in a serviceable area downstream of the last duct inlet.

4. Each connection to a vertical duct or riser serving two or more floors from return air ducts or plenums of heating, ventilating and air-conditioning systems, except that in Group R occupancies, a *listed* smoke detector is allowed to be used in each return air riser carrying not more than 5,000 cfm (2.4 m<sup>3</sup>/s) and serving not more than 10 air-inlet openings.

5. Within 5 feet (1524 mm) of doors exiting into stairways that are pressurized stairways.

**Exception:** If such locations are within parking garages, smoke detectors are not required.

6. Two smoke detectors are required for stairway and elevator hoistway pressurization air intakes, arranged to automatically shut down the pressurization fans only when both detectors activate. The detectors shall be located downstream of each fan and be connected to the fire alarm as a supervisory signal.

**[F] 907.2.18.2 Alarm required.** Activation of the smoke control system shall activate an audible alarm at a *constantly attended location*.

**[F] 907.2.19 Deep underground buildings.** Where the lowest level of a structure is more than 60 feet (18 288 mm) below the finished floor of the lowest *level of exit discharge*, the structure shall be equipped throughout with a manual fire alarm system, including an emergency voice/alarm communication system installed in accordance with Section 907.5.2.2.

**[F] 907.2.20 Covered mall buildings.** *Covered mall buildings* exceeding 50,000 square feet (4645 m<sup>2</sup>) in total floor area shall be provided with an emergency voice/alarm communication system. An emergency voice/alarm communication system serving a mall, required or otherwise, shall be accessible to the fire department. The system shall be provided in accordance with Section 907.5.2.2.

1 **[F] 907.2.21 Residential aircraft hangars.** A minimum of one single-station smoke alarm shall  
2 be installed within a residential aircraft hangar as defined in Section 412.3.1 and shall be  
3 interconnected into the residential smoke alarm or other sounding device to provide an alarm  
4 which will be audible in all sleeping areas of the *dwelling*.

5 **[F] 907.2.22 Airport traffic control towers.** An automatic smoke detection system that activates  
6 the occupant notification system in accordance with Section 907.5 shall be provided in airport  
7 control towers in all occupiable and equipment spaces.

8 **Exception:** Audible appliances shall not be installed within the control tower cab.

9 **[F] 907.2.23 Battery rooms.** An automatic smoke detection system shall be installed in areas  
10 containing stationary storage battery systems with a liquid capacity of more than 50 gallons (189  
11 L).

12 **[F] 907.3 Fire safety functions.** Automatic fire detectors utilized for the purpose of performing  
13 fire safety functions shall be connected to the building's fire alarm control unit where a fire alarm  
14 system is required by Section 907.2. Detectors shall, upon actuation, perform the intended  
15 function and activate the alarm notification appliances or activate a visible and audible  
16 supervisory signal at a *constantly attended location*. In buildings not equipped with a fire alarm  
17 system, the automatic fire detector shall be powered by normal electrical service and, upon  
18 actuation, perform the intended function. The detectors shall be located in accordance with  
19 NFPA 72.

20 **[F] 907.3.1 Duct smoke detectors.** Smoke detectors installed in ducts shall be *listed* for the air  
21 velocity, temperature and humidity present in the duct. Duct smoke detectors shall be connected  
22

1 to the building's fire alarm control unit when a fire alarm system is required by Section 907.2.  
2 Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a  
3 *constantly attended location* and shall perform the intended fire safety function in accordance  
4 with this code and the *International Mechanical Code*. Duct smoke detectors shall not be used as  
5 a substitute for required open area detection and shall not activate the occupant notification  
6 system.  
7

8 **Exceptions:**

9 1. The supervisory signal at a *constantly attended location* is not required where duct smoke  
10 detectors activate the building's alarm notification appliances.  
11

12 2. In occupancies not required to be equipped with a fire alarm system, actuation of a smoke  
13 detector shall activate a visible and an audible signal in an *approved* location. Smoke detector  
14 trouble conditions shall activate a visible or audible signal in an *approved* location and shall be  
15 identified as air duct detector trouble.  
16

17 **[F] 907.3.2 Delayed egress locks.** Where delayed egress locks are installed on *means of egress*  
18 doors in accordance with Section 1008.1.9.6, an automatic smoke or heat detection system shall  
19 be installed as required by that section.

20 **[F] 907.3.3 Elevator emergency operation.** Automatic fire detectors installed for elevator  
21 emergency operation shall be installed in accordance with the provisions of ((~~ASME A17.1 and~~  
22 ~~NFPA 72~~)) rules promulgated by the building official.  
23

24 **[F] 907.3.4 Wiring.** The wiring to the auxiliary devices and equipment used to accomplish the  
25 above fire safety functions shall be monitored for integrity in accordance with NFPA 72.  
26

\*\*\*

**[F] 907.5 Occupant notification systems.** A fire alarm system shall annunciate at the panel and shall initiate occupant notification upon activation, in accordance with Sections 907.5.1 through 907.5.2.3.4. Where a fire alarm system is required by another section of this code, it shall be activated by:

1. Automatic fire detectors other than duct smoke detectors, and smoke alarms located inside dwelling units and sleeping units.
2. Sprinkler waterflow devices.
3. Manual fire alarm boxes.
4. Automatic fire-extinguishing systems.

**Exception:** Where notification systems are allowed elsewhere in Section 907 to annunciate at a *constantly attended location*.

**[F] 907.5.1 Presignal feature.** A presignal feature shall not be installed unless *approved* by the fire code official and the fire department. Where a presignal feature is provided, a signal shall be annunciated at a *constantly attended location approved* by the fire department, in order that occupant notification can be activated in the event of fire or other emergency.

**[F] 907.5.2 Alarm notification appliances.** Alarm notification appliances shall be provided and shall be *listed* for their purpose.

**[F] 907.5.2.1 Audible alarms.** Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm.

**Exception:**



Visible alarm notification appliances shall be allowed in lieu of audible alarm notification appliances in critical care areas of Group I-2 occupancies.

**907.5.2.1.1 Average sound pressure.** The audible alarm notification appliances shall provide a sound pressure level of 15 decibels (dBA) above the average ambient sound level or 5 dBA above the maximum sound level having a duration of at least 60 seconds, whichever is greater, in every *occupiable space* within the building or in the case of a partial fire alarm system, throughout the space that is being provided with the fire alarm system. The minimum sound pressure levels shall be: 75 dBA in occupancies in Groups R and I-1; 90 dBA in mechanical equipment rooms and 60 dBA in other occupancies. In assembly occupancies with high sound levels such as nightclubs and bars, an interface shall be provided between the fire alarm system and the noise source to eliminate the noise source upon activation of the fire alarm system.

**Exceptions:**

1. Private mode signaling in accordance with NFPA 72 shall be allowed in areas of group I-2 and I -3 occupancies where occupants are not expected to self evacuate.
2. Audibility is not required for fire detection systems monitored by an approved central station in buildings not required by this section to be provided with a fire alarm system.

**907.5.2.1.2 Maximum sound pressure.** The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance. Where the average ambient noise is greater than 95 dBA, visible alarm notification appliances shall be provided in accordance with NFPA72 and audible alarm notification appliances shall not be required.

**907.5.2.2 Emergency voice/alarm communication systems.** Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler waterflow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving *approved* information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404. In high-rise buildings, the system shall operate on a minimum of the alarming floor, the floor above and ~~((the))~~ two floors below. For purposes of this section, a floor is considered all floors interconnected by open stairways, escalators, or atriums without approved automatic opening protectives. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:

1. Elevator groups.
2. Each ~~((E))~~ exit stairway ~~((s))~~.
3. Each floor.
4. *Areas of refuge* as defined in Section 1002.1.

**Exception:** In Group I-1 and I-2 occupancies, the alarm shall sound in a constantly attended area and a general occupant notification shall be broadcast over the overhead page.

**[F] 907.5.2.2.1 Manual override.** A manual override for emergency voice communication shall be provided on a selective and all-call basis for all paging zones.

1 [F] **907.5.2.2.2 Live voice messages.** The emergency voice/alarm communication system shall  
2 also have the capability to broadcast live voice messages by paging zones on a selective and all-  
3 call basis.

4 [F] **907.5.2.2.3 Alternate uses.** The emergency voice/alarm communication system shall be  
5 allowed to be used for other announcements, provided the manual fire alarm use takes  
6 precedence over any other use.

7 [F] **907.5.2.2.4 Emergency power.** Emergency voice/alarm communications systems shall be  
8 provided with an *approved* emergency power source.

9 [F] **907.5.2.3 Visible alarms.** Visible alarm notification appliances shall be provided in  
10 accordance with Sections 907.5.2.3.1 through 907.5.2.3.4 and rules promulgated by the building  
11 official or fire code official.

12 **Exceptions:**

13 1. Visible alarm notification appliances are not required in *alterations*, except where an existing  
14 fire alarm system is upgraded or replaced, or a new fire alarm system is installed in accordance  
15 with rules promulgated by the building or fire code official.

16 2. Visible alarm notification appliances shall not be required in *exits* as defined in Section  
17 1002.1.

18 3. Visible alarm notification appliances shall not be required in elevator cars.

19 [F] **907.5.2.3.1 Public and common areas.** Visible alarm notification appliances shall be  
20 provided in public areas and common areas.

1 **[F] 907.5.2.3.2 Employee work areas.** Where employee work areas have audible alarm  
2 coverage, the notification appliance circuits serving the employee work areas shall be initially  
3 designed with a minimum of 20-percent spare capacity to account for the potential of adding  
4 visible notification appliances in the future to accommodate hearing impaired employee(s).

5 **[F] 907.5.2.3.3 Groups I-1 and R-1.** Group I-1 and R-1 *dwelling units* or *sleeping units* in  
6 accordance with Table 907.5.2.3.3 shall be provided with a visible alarm notification appliance,  
7 activated by both the in-room smoke alarm and the building fire alarm system.  
8

9 **[F] 907.5.2.3.4 Group R-2.** In Group R-2 occupancies required by Section 907 to have a fire  
10 alarm system, all *dwelling units* and *sleeping units* shall be provided with the capability to  
11 support visible alarm notification appliances in accordance with ICC A117.1.  
12

13 \*\*\*

14 **[F] 907.6 Installation.** A fire alarm system shall be installed in accordance with this section and  
15 NFPA 72.  
16

17 **[F] 907.6.1 Wiring.** Wiring shall comply with the requirements of ((NFPA 70)) the Seattle  
18 Electrical Code and NFPA 72. Wireless protection systems utilizing radio-frequency transmitting  
19 devices shall comply with the special requirements for supervision of low-power wireless  
20 systems in NFPA 72.  
21

22 **[F] 907.6.2 Power supply.** The primary and secondary power supply for the fire alarm system  
23 shall be provided in accordance with NFPA 72.

24 **Exception:** Back-up power for single-station and multiple- station smoke alarms as required in  
25 Section 907.2.11.4.  
26

1 [F] **907.6.3 Zones.** Each floor shall be zoned separately and a zone shall not exceed 22,500  
2 square feet (2090 m<sup>2</sup>). The length of any zone shall not exceed 300 feet (91 440 mm) in any  
3 direction.

4 **Exception:** *Automatic sprinkler system* zones shall not exceed the area permitted by NFPA 13.

5 [F] **907.6.3.1** (~~(Zoning indicator panel. A zoning indicator panel and the associated controls~~  
6 ~~shall be provided in an approved location.))~~ **Annunciator Panel.** All fire alarm systems in  
7 buildings without a fire command center shall provided with an annunciator panel or the main  
8 fire alarm control panel located inside the building at the main building entrance. The visual zone  
9 indication on the annunciator panel shall lock in until the system is reset and shall not be  
10 canceled by the operation of an audible-alarm silencing switch.

11 [F] **907.6.3.2 High-rise buildings.** In high-rise buildings, a separate zone by floor shall be  
12 provided for each of the following types of alarm-initiating devices where provided:

- 13 1. Smoke detectors.
- 14 2. Sprinkler waterflow devices.
- 15 3. Manual fire alarm boxes.
- 16 4. Other *approved* types of automatic fire detection devices or suppression systems.

17 [F] **907.6.4 Access.** Access shall be provided to each fire alarm device and notification appliance  
18 for periodic inspection, maintenance and testing.

19 [F] **907.6.5 Monitoring.** Fire alarm systems required by this chapter or by the *International Fire*  
20 *Code* shall be monitored by an *approved* supervising station in accordance with NFPA 72.

21 **Exception:** Monitoring by a supervising station is not required for:

1. Single- and multiple-station smoke alarms required by Section 907.2.11.

2. Smoke detectors in Group I-3 occupancies.

3. *Automatic sprinkler systems* in one- and two-family dwellings and townhouses.

**[F] 907.6.5.1 Automatic telephone-dialing devices.** Automatic telephone-dialing devices used to transmit an emergency alarm shall not be connected to any fire department telephone number unless *approved* by the fire chief.

**[F] 907.7 Acceptance tests and completion.** Upon completion of the installation, and after the electrical inspector  
has approved the installation, the fire alarm system and all fire alarm components shall be tested in accordance with NFPA 72 in the presence of the fire code official, by individuals who possess the proper certificate from the fire  
code official.

**[F] 907.7.1 Single- and multiple-station alarm devices.** When the installation of the alarm devices is complete, each device and interconnecting wiring for multiple-station alarm devices shall be tested in accordance with the smoke alarm provisions of NFPA 72.

**[F] 907.7.2 Record of completion.** A record of completion in accordance with NFPA 72 verifying that the system has been installed and tested in accordance with the *approved* plans and specifications shall be provided.

**[F] 907.7.3 Instructions.** Operating, testing and maintenance instructions and record drawings (“as-builts”) and equipment specifications shall be provided at an *approved* location.

1 [F] **907.8 Inspection, testing and maintenance.** The maintenance and testing schedules and  
2 procedures for fire alarm and fire detection systems shall be in accordance with Section 907.9 of  
3 the *International Fire Code*.

4 \*\*\*

## 5 SECTION 909

### 7 SMOKE CONTROL SYSTEMS

8 \*\*\*

9 [F] **909.11 Power systems.** The smoke control system shall be supplied with two sources of  
10 power. Primary power shall be from the normal building power systems. Secondary power shall  
11 be from an *approved* ~~((standby))~~ emergency power system ~~((source))~~ complying with Chapter 27  
12 of this code and the *Seattle Electrical Code*. The ~~((standby))~~ emergency power system ~~((source))~~  
13 and its transfer switches shall be in a room separate from the normal power transformers and  
14 switch gears and ventilated directly to and from the exterior. The room shall be enclosed with not  
15 less than 1-hour *fire barriers* constructed in accordance with Section 707 or horizontal  
16 assemblies constructed in accordance with Section 712, or both.

17 **Exception:** A generator set with a diesel fuel tank system exceeding 660 gallons is not required  
18 to be located in a rated room when installed in a sprinklered parking garage of Type I or II  
19 construction, unless a 1-hour separation is required to separate control areas in accordance with  
20 the *International Fire Code*.

21 [F] **909.11.1 Power sources and power surges.** Elements of the smoke management system  
22 relying on volatile memories or the like shall be supplied with uninterruptable power sources of  
23

sufficient duration to span a 15-minute primary power interruption. Elements of the smoke management system susceptible to power surges shall be suitably protected by conditioners, suppressors or other *approved* means.

**909.11.2 Wiring.** In addition to meeting requirements of the Seattle Electrical Code, all wiring regardless of voltage, shall have fire-resistance-rated protection of at least two hours or as required in rules promulgated by the building official.

**Exception:** Subject to the approval of the building official, fire-resistance rating is not required for wiring located in a parking garage.

**[F] 909.12 Detection and control systems.** Fire detection systems providing control input or output signals to mechanical smoke control systems or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and *listed* as smoke control equipment.

Control systems for mechanical smoke control systems shall include provisions for verification. Verification shall include positive confirmation of actuation, testing, manual override, the presence of power downstream of all disconnects and, through a preprogrammed weekly test sequence, report abnormal conditions audibly, visually and by printed report.

**[F] 909.12.1 Wiring.** See Section 909.11.2. ~~((In addition to meeting requirements of NFPA 70, all wiring, regardless of voltage, shall be fully enclosed within continuous raceways.))~~

**[F] 909.12.2 Activation.** Smoke control systems shall be activated in accordance with this section.



1 [F] **909.12.2.1 Pressurization, airflow or exhaust method.** Mechanical smoke control systems  
2 using the pressurization, airflow or exhaust method shall have completely automatic control.

3 [F] **909.12.2.2 Passive method.** Passive smoke control systems actuated by *approved* spot-type  
4 detectors *listed* for releasing service shall be permitted.

5 [F] **909.12.3 Automatic control.** Where completely automatic control is required or used, the  
6 automatic-control sequences shall be initiated from an appropriately zoned *automatic sprinkler*  
7 *system* complying with Section 903.3.1.1, manual controls that are readily accessible to the fire  
8 department and any smoke detectors ((~~required by engineering analysis~~)).

9 \*\*\*  
10

11 [F] **909.16 Fire-fighter's smoke control panel.** A fire-fighter's smoke control panel for fire  
12 department emergency response purposes only shall be provided and shall include manual  
13 control or override of automatic control for mechanical smoke control systems. The panel shall  
14 be located in a fire command center complying with Section 911 in highrise buildings or  
15 buildings with smoke-protected assembly seating. In all other buildings, the fire-fighter's smoke  
16 control panel shall be installed in an *approved* location adjacent to the fire alarm control panel.  
17

18 The fire-fighter's smoke control panel shall comply with Sections 909.16.1 through 909.16.3.

19 The smoke control panel for high rise buildings shall include a visual depiction of the building  
20 showing typical floor plan(s) with locations of exit enclosures and elevator shafts. The panel  
21 shall also include section views of the building to show the extent of travel for each exit  
22 enclosure and elevator. Exit enclosures and elevator shafts shall be labeled on the plan section  
23 views to match the labeling used in the building itself.  
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1 **[F] 909.16.1 Smoke control systems.** Fans within the building shall be shown on the fire-  
2 fighter's control panel. Fan control switches shall be located on the panel in the vicinity of the  
3 location where the shaft supplied by each fan is depicted. A clear indication of the direction of  
4 airflow and the relationship of components shall be displayed. Status indicators shall be provided  
5 for all smoke control fans (~~((equipment, annunciated by fan and zone, and by pilot lamp type~~  
6 ~~indicators)))~~ as follows:

7  
8 1. Fans in a ready/non-operating status (~~((, dampers and other operating equipment in their normal~~  
9 ~~status)))~~—WHITE.

10 2. Fans(~~((, dampers and other operating equipment)))~~ in their off or closed status—RED.

11 3. Fans in operation (~~((, dampers and other operating equipment in their on or open status)))~~—  
12 GREEN.

13 4. Fans in a fault condition (~~((, dampers and other operating equipment in a fault status)))~~—  
14 YELLOW/AMBER.

15 **[F] 909.16.2 Smoke control panel.** The fire-fighter's control panel shall provide control  
16 capability over the complete smoke-control system equipment within the building as follows:

17 1. ON-AUTO-OFF control over each shaft pressurization  
18 fan. (~~((individual piece of operating smoke control equipment that can also be controlled from~~  
19 ~~other sources within the building. This includes stairway pressurization fans; smoke exhaust~~  
20 ~~fans; supply, return and exhaust fans; elevator shaft fans and other operating equipment used or~~  
21 ~~intended for smoke control purposes.)))~~

2. (~~((OPEN AUTO CLOSE control over individual dampers relating to smoke control and that are also controlled from other sources within the building.))~~) AUTO-OFF-POSITIVE PRESSURE-NEGATIVE PRESSURE control over each smoke control zone designed with such features. Individual control of each damper and fan used to achieve the positive or negative pressure condition is not required.

3. (~~((ON-OFF or OPEN-CLOSE control over smoke control and other critical equipment associated with a fire or smoke emergency and that can only be controlled from the fire fighter's control panel.))~~) AUTO-EXHAUST-OFF control over each smoke control zone using the exhaust method of smoke control.

**Exception((s)):** Complex exhaust systems using multiple exhaust fans and/or zones may require individual fan control if required by the fire code official.

~~1. Complex systems, where approved, where the controls and indicators are combined to control and indicate all elements of a single smoke zone as a unit.~~

~~2. Complex systems, where approved, where the control is accomplished by computer interface using approved, plain English commands.))~~

**[F] 909.16.3 Control action and priorities.** The firefighter's control panel actions shall be as follows:

1. ON-OFF and OPEN-CLOSE control actions shall have the highest priority of any control point within the building. Once issued from the fire-fighter's control panel, no automatic or manual control from any other control point within the building shall contradict the control action.

Where automatic means are provided to interrupt normal, nonemergency equipment operation or

1 produce a specific result to safeguard the building or equipment (i.e., duct freezestats, duct  
2 smoke detectors, high-temperature cutouts, temperature-actuated linkage and similar devices),  
3 such means shall be capable of being overridden by the fire-fighter's control panel. The last  
4 control action as indicated by each fire-fighter's control panel switch position shall prevail. In no  
5 case shall control actions require the smoke control system to assume more than one  
6 configuration at any one time.  
7

8 **Exception:** Power disconnects required by the Seattle Electrical Code ((~~NEPA~~ 70)).

9 2. Only the AUTO position of each three-position fire-fighter's control panel switch shall allow  
10 automatic or manual control action from other control points within the building. The AUTO  
11 position shall be the NORMAL, nonemergency, building control position. Where a fire-fighter's  
12 control panel is in the AUTO position, the actual status of the device (on, off, open, closed) shall  
13 continue to be indicated by the status indicator described above. When directed by an automatic  
14 signal to assume an emergency condition, the NORMAL position shall become the emergency  
15 condition for that device or group of devices within the zone. In no case shall control actions  
16 require the smoke control system to assume more than one configuration at any one time.  
17  
18

19 \*\*\*

20 **[F] 909.18 Acceptance testing.** Devices, equipment, components and sequences shall be  
21 individually tested. These tests, in addition to those required by other provisions of this code,  
22 shall consist of determination of function, sequence and, where applicable, capacity of their  
23 installed condition.  
24  
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1 [F] **909.18.1 Detection devices.** Smoke or fire detectors that are a part of a smoke control system  
2 shall be tested in accordance with Chapter 9 in their installed condition. When applicable, this  
3 testing shall include verification of airflow in both minimum and maximum conditions.

4 [F] **909.18.2 Ducts.** Ducts that are part of a smoke control system shall be traversed using  
5 generally accepted practices to determine actual air quantities.  
6

7 [F] **909.18.3 Dampers.** *Dampers* shall be tested for function in their installed condition.

8 [F] **909.18.4 Inlets and outlets.** Inlets and outlets shall be read using generally accepted  
9 practices to determine air quantities.

10 [F] **909.18.5 Fans.** Fans shall be examined for correct rotation. Measurements of voltage,  
11 amperage, revolutions per minute (rpm) and belt tension shall be made.  
12

13 [F] **909.18.6 Smoke barriers.** Measurements using inclined manometers or other *approved*  
14 calibrated measuring devices shall be made of the pressure differences across *smoke barriers*.  
15 Such measurements shall be conducted for each possible smoke control condition.

16 [F] **909.18.7 Controls.** Each smoke zone equipped with an automatic-initiation device shall be  
17 put into operation by the actuation of one such device. Each additional device within the zone  
18 shall be verified to cause the same sequence without requiring the operation of fan motors in  
19 order to prevent damage. Control sequences shall be verified throughout the system, including  
20 verification of override from the fire-fighter's control panel and simulation of legally required  
21 standby power conditions.  
22

23 [F] **909.18.8 Special inspections for smoke control.** Smoke control systems shall be tested by a  
24 special inspector for compliance with the approved plans.  
25  
26

1 **[F] 909.18.8.1 Scope of testing.** *Special inspections* shall be conducted in accordance with the  
2 following:

3 ~~((1. During erection of ductwork and prior to concealment for the purposes of leakage testing and  
4 recording of device location.))~~

5 ~~((2.))~~ Prior to occupancy and after sufficient completion for the purposes of pressure-difference  
6 testing, flow measurements, and detection and control verification.  
7

8 **[F] 909.18.8.2 Qualifications.** *Special inspection* agencies for smoke control shall have expertise  
9 in fire protection engineering, mechanical engineering and certification as air balancers.

10 **[F] 909.18.8.3 Reports.** A complete report of testing shall be prepared by the special inspector or  
11 *special inspection* agency. The report shall include identification of all devices by manufacturer,  
12 nameplate data, design values, measured values and identification tag or *mark*. The report shall  
13 be reviewed by the responsible *registered design professional* and, when satisfied that the design  
14 intent has been achieved, the responsible *registered design professional* shall seal, sign and date  
15 the report.  
16  
17

18 **[F] 909.18.8.3.1 Report filing.** A copy of the final report shall be filed with the fire code official  
19 and an identical copy shall be maintained in an *approved* location at the building.

20 **[F] 909.18.9 Identification and documentation.** Charts, drawings and other documents  
21 identifying and locating each component of the smoke control system, and describing its proper  
22 function and maintenance requirements, shall be maintained on file at the building as an  
23 attachment to the report required by Section 909.18.8.3. Devices shall have an *approved*  
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identifying tag or *mark* on them consistent with the other required documentation and shall be dated indicating the last time they were successfully tested and by whom.

\*\*\*

**909.20 Smokeproof enclosures.** Where required by Section 1022.9, a smokeproof enclosure shall be constructed in accordance with ~~((this section.))~~ Sections 909.10 through 909.20. A smokeproof enclosure shall consist of an enclosed interior *exit stairway* that conforms to Section 1022.1 ~~((and an open exterior balcony or ventilated vestibule meeting))~~ and is pressurized according to the requirements of this section. Where access to the roof is required by the *International Fire Code*, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

~~((909.20.1 Access. Access to the stair shall be by way of a vestibule or an open exterior balcony. The minimum dimension of the vestibule shall not be less than the required width of the corridor leading to the vestibule but shall not have a width of less than 44 inches (1118 mm) and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel.~~

~~**909.20.2 Construction.** The smokeproof enclosure shall be separated from the remainder of the building by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both. Openings are not permitted other than the required *means of egress* doors. The vestibule shall be separated from the *stairway* by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both. The open exterior~~

balcony shall be constructed in accordance with the ~~fire resistance rating~~ requirements for floor assemblies.

**909.20.2.1 Door closers.** Doors in a smokeproof enclosure shall be self or automatic closing by actuation of a smoke detector in accordance with Section 715.4 and shall be installed at the floor side entrance to the smokeproof enclosure. The actuation of the smoke detector on any door shall activate the closing devices on all doors in the smokeproof enclosure at all levels. Smoke detectors shall be installed in accordance with Section 907.3.

**909.20.3 Natural ventilation alternative.** The provisions of Sections 909.20.3.1 through 909.20.3.3 shall apply to ventilation of smokeproof enclosures by natural means.

**909.20.3.1 Balcony doors.** Where access to the ~~stairway~~ is by way of an open exterior balcony, the door assembly into the enclosure shall be a ~~fire door assembly~~ in accordance with Section 715.4.

**909.20.3.2 Vestibule doors.** Where access to the ~~stairway~~ is by way of a vestibule, the door assembly into the vestibule shall be a ~~fire door assembly~~ complying with Section 715.4. The door assembly from the vestibule to the ~~stairway~~ shall have not less than a 20 minute ~~fire protection rating~~ complying with Section 715.4.

**909.20.3.3 Vestibule ventilation.** Each vestibule shall have a minimum net area of 16 square feet (1.5 m<sup>2</sup>) of opening in a wall facing an outer ~~court, yard or public way~~ that is at least 20 feet (6096 mm) in width.

**909.20.4 Mechanical ventilation alternative.** The provisions of Sections 909.20.4.1 through 909.20.4.4 shall apply to ventilation of smokeproof enclosures by ~~mechanical means~~.



**909.20.4.1 Vestibule doors.** The door assembly from the building into the vestibule shall be a fire door assembly complying with Section 715.4.3. The door assembly from the vestibule to the stairway shall not have less than a 20-minute fire protection rating and meet the requirements for a smoke door assembly in accordance with Section 715.4.3. The door shall be installed in accordance with NFPA 105.

**909.20.4.2 Vestibule ventilation.** The vestibule shall be supplied with not less than one air change per minute and the exhaust shall not be less than 150 percent of supply. Supply air shall enter and exhaust air shall discharge from the vestibule through separate, tightly constructed ducts used only for that purpose. Supply air shall enter the vestibule within 6 inches (152 mm) of the floor level. The top of the exhaust register shall be located at the top of the smoke trap but not more than 6 inches (152 mm) down from the top of the trap, and shall be entirely within the smoke trap area. Doors in the open position shall not obstruct duct openings. Duct openings with controlling dampers are permitted where necessary to meet the design requirements, but dampers are not otherwise required.

**909.20.4.2.1 Engineered ventilation system.** Where a specially engineered system is used, the system shall exhaust a quantity of air equal to not less than 90 air changes per hour from any vestibule in the emergency operation mode and shall be sized to handle three vestibules simultaneously. Smoke detectors shall be located at the floor side entrance to each vestibule and shall activate the system for the affected vestibule. Smoke detectors shall be installed in accordance with Section 907.3.

**909.20.4.3 Smoke trap.** The vestibule ceiling shall be at least 20 inches (508 mm) higher than the door opening into the vestibule to serve as a smoke and heat trap and to provide an upward-moving air column. The height shall not be decreased unless ~~approved~~ and justified by design and test.

**909.20.4.4 Stair shaft air movement system.** The ~~stair~~ shaft shall be provided with a dampered relief opening and supplied with sufficient air to maintain a minimum positive pressure of 0.10 inch of water (25 Pa) in the shaft relative to the vestibule with all doors closed.))

**909.20.5 Stairway pressurization** ((~~alternative.~~ Where the building is equipped throughout with an ~~automatic sprinkler system~~ in accordance with Section 903.3.1.1, the vestibule is not required, provided that interior exit)) Exit stairways ((are)) shall be pressurized to a minimum of 0.10 inches of water (25 Pa) and a maximum of 0.35 inches of water (87 Pa) in the shaft relative to the building measured with all stairway doors closed under maximum anticipated conditions of stack effect and wind effect. The pressure differential shall be measured between the exit enclosure and the adjacent area. In residential buildings, the pressure differential is permitted to be measured between the exit enclosure and the dwelling units.

**Exception:** The pressure differential is permitted to be measured relative to outdoor atmosphere on floors other than the following:

1. the fire floor,
2. the two floors immediately below the fire floor, and
3. the floor immediately above the fire floor.

**909.20.5.1 Supply Air.** Air for stairway pressurization shall be supplied at intervals sufficient to maintain the required pressure throughout the exit enclosure.

**Note:** The performance goal for Section 909.20.5.1 is compliance with minimum and maximum pressures at all levels of the shaft, and to ensure upward flow of air and smoke.

**909.20.5.2 Supply air.** Supply air shall be taken directly from an outside, uncontaminated source at least 20 feet (6096 mm) from any air exhaust system or outlet. The supply air intake shall be located at the exterior of the building. The intake shall be continuous to the exterior of the building. The fan system shall be equipped with two smoke detectors located in the duct in accordance with NFPA 72 arranged to automatically shut down the fan system only when both smoke detectors activate. The detectors shall be located downstream of the fan and shall be connected to the fire alarm as a supervisory signal.

**909.20.5.3 Dampered relief opening.** The exit enclosure shall be equipped with a relief opening at the top. The relief opening shall be equipped with a barometric relief damper and a motorized damper that complies with the *Washington State Energy Code with Seattle Amendments*. The motorized damper shall be of the normally open type (open with the power off). Activation of the damper shall be initiated by the building fire alarm system and by actuation of the automatic sprinkler system.

The pressurization system shall be capable of maintaining the differential pressure required by Section 909.20.5 while discharging 2,500 cubic feet per minute (1180 L/s) of air through the relief opening.

The relief outlet shall be located at least 20 feet from elevator hoistway and stairway pressurization system supply air intake locations.

**909.20.6 ((Ventilating)) Pressurization equipment.** The ((activation of ventilating)) pressurization equipment required by ((the alternatives in)) Section((s 909.20.4 and)) 909.20.5 shall be activated by a fire alarm signal originating anywhere in the building.((smoke detectors installed at each floor level at an *approved* location at the entrance to the smokeproof enclosure. When the closing device for the *stair* shaft and vestibule doors is activated by smoke detection or power failure, the mechanical equipment shall activate and operate at the required performance levels.)) Smoke detectors shall be installed in accordance with Section 907.3.

**909.20.6.1 ((Ventilation)) Pressurization systems.** ((Smokeproof enclosure ventilation)) Stairway pressurization systems shall be independent of other building ventilation systems.

**Exception:** Ventilation systems other than exit enclosure supply air systems are permitted to be used to exhaust air from adjacent space when necessary to maintain the differential pressure relationships. Ventilation systems used to achieve stairway pressurization are not required to comply with Section 909.

**909.20.6.1.1 Protection of equipment.** The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the ((smokeproof)) exit enclosure or connected to the ((smokeproof)) exit enclosure by ductwork enclosed by ((not less than 2-hour)) *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance

with Section 712, or both, with a fire-resistance rating not less than that required for the exit enclosure.

2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both, with a fire-resistance rating not less than that required for the exit enclosure.

3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 712, or both, with a fire-resistance rating not less than that required for the exit enclosure.

**Exceptions:**

1. Control wiring and power wiring utilizing a 2-hour rated cable or cable system.
2. Where encased with not less than 2 inches (51 mm) of concrete.

**Interpretation I909.20:** Dampers other than motorized dampers required by the *Washington State Energy Code with Seattle Amendments* are not permitted in stairway pressurization system air supply unless approved by the building official.

**909.20.6.2 ((Standby)) Emergency power system.** ~~((Mechanical vestibule and stair shaft ventilation Pressurization systems and automatic fire detection systems shall be powered by an~~

1 *approved* ~~((standby))~~ emergency power system conforming to Section ~~((403.4.7))~~ 403.4.8 and  
2 Chapter 27.

3 ~~((909.20.6.3 Acceptance and testing. Before the mechanical equipment is *approved*, the system  
4 shall be tested in the presence of the *building official* to confirm that the system is operating in  
5 compliance with these requirements. ))~~

6  
7 **909.20.6.3 Rational analysis.** A rational analysis complying with Section 909.4 shall be  
8 submitted with the construction documents.

9 **909.20.6.4 Special inspection and acceptance testing.** Special inspection and acceptance  
10 testing shall comply with Section 909.18 and 909.19.

11  
12 **909.21 Pressurization for low-rise buildings.** Where stairway pressurization is provided in  
13 accordance with exception 3 of Section 1021.2.1 or with item 11 of Section 509.2, the  
14 pressurization system shall comply with the following:

15 1. Stairways shall be pressurized to a minimum positive pressure of 0.15 inch of water column  
16 (37 Pa) relative to the main occupied area on each floor, and a maximum pressure that complies  
17 with Section 1008.1.3.

18  
19 2. The stairway pressurization shall be activated by a fire alarm originating anywhere in the  
20 building. Smoke detectors shall be installed within 5 feet (1524 mm) of doors exiting into  
21 pressurized stairways.

22  
23 3. Pressurization equipment and its duct work located within the building shall be separated from  
24 other portions of the building by construction equal to that required for the exit enclosure.

- 1 4. Supply air shall be taken directly from an outside, uncontaminated source at least 20 feet (6096  
2 mm) from any air exhaust system or outlet. Air ducts shall be continuous to the exterior of the  
3 building. Two smoke detectors shall be located in the duct in accordance with NFPA 72 arranged  
4 to automatically shut down the fan system only  
5 when both smoke detectors activate. The detectors shall be located downstream of the fan and  
6 shall be connected to the fire alarm as a supervisory signal.  
7  
8 5. A legally required standby power system shall be provided for the pressurization system  
9 according to *Seattle Electrical Code* Section 701.11. A connection ahead of the service  
10 disconnecting means shall be permitted as the sole source of power to the pressurization system.  
11  
12 6. Other measures to prevent loss of pressurization shall be provided in the design and  
13 construction of exit enclosures, such as doors and door closers, quality of workmanship and  
14 caulking of penetrations and joints.  
15  
16 7. A rational analysis complying with Section 909.4 is not required for stairway pressurization  
17 systems in low-rise buildings.  
18  
19 8. Special inspection and acceptance testing shall comply with Section 909.18 and 909.19.

20 \*\*\*

## 21 SECTION 911

### 22 FIRE COMMAND CENTER

23 **[F] 911.1 General.** Where required by other sections of this code and in all buildings classified  
24 as high-rise buildings by this code, a fire command center for fire department operations shall be  
25 provided and shall comply with Sections 911.1.1 through 911.1.5.

1 [F] **911.1.1 Location and access.** The location and accessibility of the fire command center shall  
2 be *approved* by the fire chief.

3 [F] **911.1.2 Separation.** The fire command center shall be separated from the remainder of the  
4 building by not less than a 1-hour *fire barrier* constructed in accordance with Section 707 or  
5 *horizontal assembly* constructed in accordance with Section 712, or both.

6 [F] **911.1.3 Size.** The room shall be a minimum of 200 square feet (19 m<sup>2</sup>) with a minimum  
7 dimension of 10 feet (3048 mm).

8 [F] **911.1.4 Layout approval.** A layout of the fire command center and all features required by  
9 this section to be contained therein shall be submitted for approval prior to installation.  
10

11 [F] **911.1.5 Required features.** The fire command center shall comply with NFPA 72 and shall  
12 contain the following features:  
13

- 14 1. The emergency voice/alarm communication system control unit.
- 15 2. The fire department communications system.
- 16 3. Fire detection and alarm system annunciator.
- 17 4. Annunciator unit visually indicating the location of the elevators and whether they are  
18 operational.
- 19 5. Status indicators and controls for air distribution systems.
- 20 6. The fire-fighter's control panel required by Section 909.16 for smoke control systems installed  
21 in the building.
- 22 7. Controls for unlocking *stairway* doors simultaneously.
- 23 8. Sprinkler valve and waterflow detector display panels.
- 24
- 25
- 26
- 27
- 28



9. Emergency and legally required standby power status indicators.

10. A telephone for fire department use with controlled access to the public telephone system.

11. Fire pump status indicators.

12. Schematic building plans indicating the typical floor plan and detailing the building core, *means of egress*, fire protection systems, fire-fighting equipment and fire department access and the location of *fire walls, fire barriers, fire partitions, smoke barriers* and smoke partitions.

13. Work table.

~~((14. Generator supervision devices, manual start and transfer features))~~.

15. Public address system, where specifically required by other sections of this code.

16. Elevator fire recall switch in accordance with ASME A17.1.

17. Elevator emergency or legally required standby power selector switch(es), where emergency or legally required standby power is provided.

18. On-site fire protection water tank fill-valve control switch, tank level indicators, tank low-level alarm, and tank fill signal.

\*\*\*

## SECTION 912

### FIRE DEPARTMENT CONNECTIONS

\*\*\*

**[P] 912.5 Backflow protection.** The potable water supply to automatic sprinkler and standpipe systems shall be protected against backflow as required by the ~~((International))~~ Uniform Plumbing Code.

\*\*\*

Section 11. The following sections of Chapter 10 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 10

### MEANS OF EGRESS

\*\*\*

#### SECTION 1002

##### DEFINITIONS

**1002.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**ACCESSIBLE MEANS OF EGRESS.** A continuous and unobstructed way of egress travel from any *accessible* point in a building or facility to a *public way*.

**AISLE.** An unenclosed *exit access* component that defines and provides a path of egress travel.

**AISLE ACCESSWAY.** That portion of an *exit access* that leads to an *aisle*.

**ALTERNATING TREAD DEVICE.** A device that has a series of steps between 50 and 70 degrees (0.87 and 1.22 rad) from horizontal, usually attached to a center support rail in an alternating manner so that the user does not have both feet on the same level at the same time.

**AREA OF REFUGE.** An area where persons unable to use *stairways* can remain temporarily to await instructions or assistance during emergency evacuation.

**BLEACHERS.** Tiered seating supported on a dedicated structural system and two or more rows high and is not a building element (see “*Grandstands*”).

**COMMON PATH OF EGRESS TRAVEL.** That portion of *exit access* which the occupants are required to traverse before two separate and distinct paths of egress travel to two *exits* are available. Paths that merge are common paths of travel. Common paths of egress travel shall be included within the permitted travel distance.

**CORRIDOR.** An enclosed *exit access* component that defines and provides a path of egress travel to an *exit*.

**DOOR, BALANCED.** A door equipped with double-pivoted hardware so designed as to cause a semicounter balanced swing action when opening.

**EGRESS COURT.** A court or *yard* which provides access to a *public way* for one or more *exits*.

**EMERGENCY ESCAPE AND RESCUE OPENING.** An operable window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.

**EXIT.** That portion of a *means of egress* system which is separated from other interior spaces of a building or structure (~~((by fire-resistance-rated construction and opening protectives as required to provide))~~) providing a protected path of egress travel between the *exit access* and the *exit discharge*, and includes required fire-resistance-rated construction and opening protectives. Exits include exterior exit doors at the *level of exit discharge*, vertical *exit enclosures*, *exit passageways*, *exterior exit stairways*, exterior *exit ramps* and *horizontal exits*.

**EXIT ACCESS.** That portion of a *means of egress* system that leads from any occupied portion of a building or structure to an *exit*.

**EXIT ACCESS DOORWAY.** A door or access point along the path of egress travel from an occupied room, area or space where the path of egress enters an intervening room, corridor, unenclosed *exit access stair* or unenclosed *exit access ramp*.

**EXIT DISCHARGE.** That portion of a *means of egress* system between the termination of an *exit* and a *public way*.

**EXIT DISCHARGE, LEVEL OF.** The *story* at the point at which an *exit* terminates and an *exit discharge* begins.

**EXIT ENCLOSURE.** An *exit* component that ~~((is separated from other interior spaces of a building or structure by fire resistance rated construction and opening protectives, and))~~ provides for a protected path of egress travel in a vertical or horizontal direction to the *exit discharge* or the *public way*.

**EXIT, HORIZONTAL.** A path of egress travel from one building to an area in another building on approximately the same level, or a path of egress travel through or around a wall or partition to an area on approximately the same level in the same building, which affords safety from fire and smoke from the area of incidence and areas communicating therewith.

**EXIT PASSAGEWAY.** An *exit* component that ~~((is separated from other interior spaces of a building or structure by fire resistance rated construction and opening protectives, and))~~ provides for a protected path of egress travel in a horizontal direction to the *exit discharge* or the *public way*.

**EXIT PLACARD.** A non-illuminated sign or a sign painted on a wall indicating the direction of egress.

**EXIT SIGN.** An internally-illuminated sign indicating the direction of egress.

**FIRE EXIT HARDWARE.** Panic hardware that is *listed* for use on *fire door assemblies*.

**FLIGHT.** A continuous run of rectangular treads, *winders* or combination thereof from one landing to another.

**FLOOR AREA, GROSS.** The floor area within the inside perimeter of the *exterior walls* of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding *exterior walls* shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts.

**FLOOR AREA, NET.** The actual occupied area not including unoccupied accessory areas such as corridors, stairways, toilet rooms, mechanical rooms and closets.

**FOLDING AND TELESCOPIC SEATING.** Tiered seating having an overall shape and size that is capable of being reduced for purposes of moving or storing and is not a building element.

**GRANDSTAND.** Tiered seating supported on a dedicated structural system and two or more rows high and is not a building element (see “*Bleachers*”).

**GUARD.** A building component or a system of building components located at or near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to a lower level.

**HANDRAIL.** A horizontal or sloping rail intended for grasping by the hand for guidance or support.

1 **MEANS OF EGRESS.** A continuous and unobstructed path of vertical and horizontal egress  
2 travel from any occupied portion of a building or structure to a *public way*. A means of egress  
3 consists of three separate and distinct parts: the *exit access*, the *exit* and the *exit discharge*.

4 **MERCHANDISE PAD.** A merchandise pad is an area for display of merchandise surrounded by  
5 *aisles*, permanent fixtures or walls. Merchandise pads contain elements such as nonfixed and  
6 moveable fixtures, cases, racks, counters and partitions as indicated in Section 105.2 from which  
7 customers browse or shop.  
8

9 **NOSING.** The leading edge of treads of *stairs* and of landings at the top of *stairway flights*.

10 **OCCUPANT LOAD.** The number of persons for which the *means of egress* of a building or  
11 portion thereof is designed.  
12

13 **PANIC HARDWARE.** A door-latching assembly incorporating a device that releases the latch  
14 upon the application of a force in the direction of egress travel.

15 **PHOTOLUMINESCENT.** Having the property of emitting light that continues for a length of  
16 time after excitation by visible or invisible light has been removed.  
17

18 **PUBLIC WAY.** A street, alley or other parcel of land open to the outside air leading to a street,  
19 that has been deeded, dedicated or otherwise permanently appropriated to the public for public  
20 use and which has a clear width and height of not less than 10 feet (3048 mm).

21 **RAMP.** A walking surface that has a running slope steeper than one unit vertical in 20 units  
22 horizontal (5-percent slope).  
23

24 **SCISSOR STAIR.** Two interlocking *stairways* providing two separate paths of egress located  
25 within one stairwell enclosure.  
26

**SELF-LUMINOUS.** Illuminated by a self-contained power source, other than batteries, and operated independently of external power sources.

**SMOKE-PROTECTED ASSEMBLY SEATING.** Seating served by *means of egress* that is not subject to smoke accumulation within or under a structure.

**STAIR.** A change in elevation, consisting of one or more risers.

**STAIRWAY.** One or more *flights of stairs*, either exterior or interior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another.

**STAIRWAY, EXTERIOR.** A *stairway* that is open on at least one side, except for required structural columns, beams, *handrails* and *guards*. The adjoining open areas shall be either *yards*, *courts* or *public ways*. The other sides of the exterior stairway need not be open.

**STAIRWAY, INTERIOR.** A *stairway* not meeting the definition of an *exterior stairway*.

**STAIRWAY, SPIRAL.** A *stairway* having a closed circular form in its plan view with uniform section-shaped treads attached to and radiating from a minimum-diameter supporting column.

**SUITE.** A group of patient treatment rooms or patient sleeping rooms within Group I-2 occupancies where staff are in attendance within the *suite*, for supervision of all patients within the suite and the suite is in compliance with the requirements of Sections 1014.2.2 through ~~((1014.2.7))~~ 1014.2.2.5.4.

**WINDER.** A tread with nonparallel edges.

## SECTION 1003

### GENERAL MEANS OF EGRESS

\*\*\*

**1003.2 Ceiling height.** The *means of egress* shall have a ceiling height of not less than 7 feet 6 inches (2286 mm).

**Exceptions:**

1. ~~((Sloped ceilings))~~ Ceilings in accordance with Section 1208.2.

~~((2. Ceilings of dwelling units and sleeping units within residential occupancies in accordance with Section~~

~~1208.2.))~~

~~((3))~~2. Allowable projections in accordance with Section 1003.3.

~~((4))~~3. Stair headroom in accordance with Section 1009.2.

~~((5))~~4. Door height in accordance with Section 1008.1.1.

~~((6))~~5. Ramp headroom in accordance with Section 1010.5.2.

~~((7))~~6. The clear height of floor levels in vehicular and pedestrian traffic areas in parking garages in accordance with Section 406.2.2.

~~((8))~~7. Areas above and below *mezzanine* floors in accordance with Section 505.1.

\*\*\*

**SECTION 1004**

**OCCUPANT LOAD**

\*\*\*

**TABLE 1004.1.1**

**MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**



FUNCTION OF SPACE	FLOOR AREA IN SQ. FT. PER OCCUPANT
Accessory storage areas, mechanical equipment room <sup>1</sup>	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal Baggage claim Baggage handling Concourse Waiting areas	20 gross 300 gross 100 gross 15 gross
Assembly Gaming floors (keno, slots, etc.)	11 gross
Assembly with fixed seats	See Section 1004.7
Assembly without fixed seats Concentrated (chairs only—not fixed) Standing space Unconcentrated (tables and chairs)	7 net 5 net 15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net

Business areas	
<u>without sprinkler protection</u>	100 gross
<u>with sprinkler protection</u>	<u>130 gross</u>
<u>Commercial laboratories</u>	<u>100 gross</u>
Courtrooms—other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops, <u>laboratories</u> and other vocational room areas	50 net
Exercise rooms	50 gross
H-5 Fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net

Stack area	100 gross
Locker rooms	50 gross
Mercantile	60 gross
Areas on other floors	30 gross
Basement and grade floor areas	300 gross
Storage, stock, shipping areas	
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 square foot = 0.0929 m<sup>2</sup>.

1. For electrical equipment areas, see also Sections 110.26 and 110.32 through 110-34 of the *Seattle Electrical Code*.

\*\*\*

## SECTION 1005

### EGRESS WIDTH

**1005.1 Minimum required egress width.** The *means of egress* width shall not be less than required by this section. The total width of *means of egress* in inches (mm) shall not be less than

the total *occupant load* served by the *means of egress* multiplied by 0.3 inches (7.62 mm) per occupant for stairways and by 0.2 inches (5.08 mm) per occupant for other egress components.

The width shall not be less than specified elsewhere in this code. The width at any point in the path of egress travel shall not be less than the width required for doors in Section 1008. Multiple *means of egress* shall be sized such that the loss of any one *means of egress* shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any *story* of a building shall be maintained to the termination of the *means of egress*.

**Exceptions:**

1. *Means of egress* complying with Section 1028.
2. For other than H and I-2 occupancies, the total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.2 inches (5.1 mm) per occupant for stairways and by 0.15 inches (3.8 mm) per occupant for other egress components in buildings that are provided with sprinkler protection in accordance with 903.3.1.1 or 903.3.1.2.
3. Aisles complying with Section 1017.
4. Corridors complying with Section 1018.2.
5. Stage stairways and catwalks complying with Section 1015.6.

\*\*\*

## SECTION 1006

### MEANS OF EGRESS ILLUMINATION

\*\*\*

**1006.2 Illumination level.** Illumination shall be provided at every point in ((F))the means of egress. The illumination level shall not be less than 1 foot-candle (11 lux) at the walking surface.

Luminaires shall be installed whenever exit signs are required as specified in Section 1011.

**Exception:** For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the walking surface is permitted to be reduced during performances to not less than 0.2 foot-candle (2.15 lux), provided that the required illumination is automatically restored upon activation of a premises' fire alarm system where such system is provided.

**Code Alternate CA1006.2:** Compliance with the following paragraphs will be deemed to satisfy the requirement for means of egress illumination at every point in the means of egress. Means of egress illumination systems that comply with this Code Alternate shall also comply with Section 1006.3.

**1. Location and Fixture Placement.** Means of egress illumination shall be located in stairways, corridors, halls, passenger elevator cars, lobbies, rooms with an occupant load of 100 or more, and other areas required to provide safe egress from the premises and immediately outside of the building exit when required by the building official. Fixtures shall be installed to not less than the following schedule:

1.1 Interior and exterior stairways and                      At least one per landing

landings and outside building exit

1.2 Corridors and halls and designated      At least one for each 40 lineal feet  
means of egress paths in parking  
garages

1.3 Lobbies, vestibules, foyers, elevator      At least one for each 250 square feet  
cars and other similar areas as required

1.4 Warehouses      See Item 2 below.

These fixtures are permitted to be included in the watts per square foot calculation for  
means of egress illumination.

2. **Amount of Illumination.** Where means of egress illumination is required, illumination  
shall be provided at the rate of 0.1 watt of fluorescent illumination per square foot of area.  
Installations using incandescent lamps shall have a minimum wattage of at least 3 times the  
fluorescent requirements. Use of other light sources is subject to the approval of the  
building official.

**Exceptions:**

1. In warehouses, the allowable minimum illumination is permitted to be 0.1 watt  
per square foot (0.03 watts for fluorescent) provided fixtures are placed either:

1.1 Where means of egress pathways are not designated, fixtures shall be  
placed to cover an area not larger than 1,600 square feet, or

1.2 Where means of egress pathways are designated, fixtures shall be  
placed at least one for every 40 lineal feet.

2. In theaters, auditoriums or other places of assembly where motion pictures or other projections are made by means of directed light, the minimum allowable illumination is permitted to be reduced to 0.05 watts per square foot of floor area (0.02 watts for fluorescent). The higher level of required illumination shall be automatically restored upon activation of a premises fire alarm system where such system is provided.

3. In Groups B, F-1, M and S-1 occupancies, when approved by the building official, the minimum allowable illumination is permitted to be reduced to 0.05 watts per square foot (0.02 watts for fluorescent) of floor area.

4. In Group B occupancies and open parking garages, when approved by the building official, the illumination is permitted to be eliminated when within 50 feet of a window wall or open side and where light is not totally obscured.

Means of egress illumination fixtures shall be spaced and designed to give adequate distribution of light for safe egress and so that the failure of any individual lighting element, such as the burning out of a light bulb, will not leave any space in total darkness. Illumination from battery operated fixtures shall provide the same level of illumination required for hard-wired fixtures.

**1006.3 Illumination ((emergency)) power supply.** The power supply for *means of egress* illumination shall normally be provided by the premises' electrical supply. In the event of power supply failure, an emergency ((electrical)) power system shall automatically illuminate all of the following areas:

1. *Aisles* and unenclosed egress *stairways* in rooms and spaces that require two or more *means of egress*.

2. *Corridors*, *exit enclosures* and *exit passageways* in buildings required to have two or more *exits*.

3. Exterior egress components at other than their *levels of exit discharge* until *exit discharge* is accomplished for buildings required to have two or more *exits*.

4. Interior *exit discharge* elements, as permitted in Section 1027.1, in buildings required to have two or more *exits*.

5. Exterior landings as required by Section 1008.1.6 for *exit discharge* doorways in buildings required to have two or more *exits*.

The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27.

\*\*\*

## SECTION 1007

### ACCESSIBLE MEANS OF EGRESS

**[W] 1007.1 Accessible means of egress required.** *Accessible means of egress* shall comply with this section. *Accessible* spaces shall be provided with not less than one *accessible means of egress*. Where more than one *means of egress* are required by Section 1015.1 or 1021.1 from any *accessible* space, each *accessible* portion of the space shall be served by not less than two *accessible means of egress*.



**Exceptions:**

1. *Accessible means of egress* are not required in alterations to existing buildings.
2. One *accessible means of egress* is required from an *accessible mezzanine* level in accordance with Section 1007.3, 1007.4 or 1007.5.
3. In assembly areas with sloped or stepped *aisles*, one *accessible means of egress* is permitted where the common path of travel is *accessible* and meets the requirements in Section 1028.8.
4. In parking garages, *accessible means of egress* are not required to serve parking areas that do not contain *accessible* parking spaces or other accessible elements.

**1007.2 Continuity and components.** Each required *accessible means of egress* shall be continuous to a *public way* and shall consist of one or more of the following components:

1. *Accessible routes* complying with Section 1104.
2. *Interior exit stairways* complying with Sections 1007.3 and 1022.
3. *Exterior exit stairways* complying with Sections 1007.3 and 1026.
4. Elevators complying with Section 1007.4.

**Interpretation I1007.2a:** An exit passageway is not required on the level of exit discharge to connect the elevator with the exterior exit door.

5. Platform lifts complying with Section 1007.5.
6. *Horizontal exits* complying with Section 1025.
7. *Ramps* complying with Section 1010.
8. *Areas of refuge* complying with Section 1007.6.

**Exceptions:**

1. Where the *exit discharge* is not *accessible*, an exterior area for assisted rescue must be provided in accordance with Section 1007.7.

2. Where the *exit stairway* is open to the exterior, the *accessible means of egress* shall include either an *area of refuge* in accordance with Section 1007.6 or an exterior area for assisted rescue in accordance with Section 1007.7.

**1007.2.1 Elevators required.** In buildings where a required *accessible* floor is four or more stories above or below a *level of exit discharge*, at least one required *accessible means of egress* shall be an elevator complying with Section 1007.4.

**Interpretation I1007.2b:** The level of exit discharge is not counted when determining whether an accessible floor is four stories above or below a level of exit discharge. See Figure 1007.2.b.

**Exceptions:**

1. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a *horizontal exit* and located at or above the *levels of exit discharge*.

2. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a ramp conforming to the provisions of Section 1010.

**Interpretation I1007.2c:** In exception 2, the ramp shall be part of an accessible means of egress.

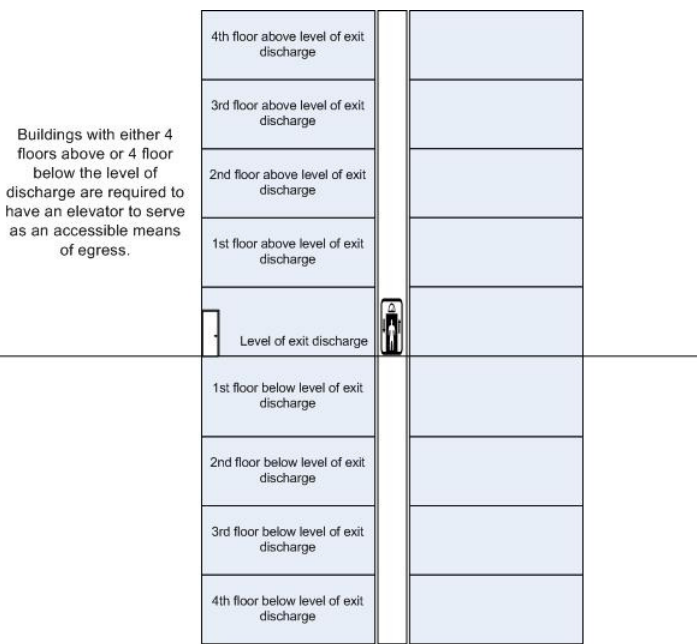


Figure 1007.2b

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**1007.4 Elevators.** In order to be considered part of an *accessible means of egress*, an elevator shall comply with the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1. ~~((Standby))~~ A legally required standby power system shall be provided for operation of the elevator, the shunt trip and elevator car lighting in accordance with Chapter 27 and ~~((3003))~~ the *Seattle Electrical Code*. The elevator shall be accessed from either an *area of refuge* complying with Section 1007.6 or a *horizontal exit*.

**Exceptions:**

1. Elevators are not required to be accessed from an *area of refuge* or *horizontal exit* in open parking garages.

2. Elevators are not required to be accessed from an *area of refuge* or *horizontal exit* in buildings and facilities equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.

3. Elevators not required to be located in a shaft in accordance with Section 708.2 are not required to be accessed from an *area of refuge* or *horizontal exit*.

4. Elevators are not required to be accessed from an *area of refuge* or *horizontal exit* for smoke protected seating areas complying with Section 1028.6.2.

**1007.5 Platform lifts.** Platform (wheelchair) lifts shall not serve as part of an *accessible means of egress*, except where allowed as part of a required *accessible route* in Section 1109.7, Items 1 through 9. ((Standby)) Legally required standby power system as defined by the Seattle Electrical Code shall be provided in accordance with Chapter 27 for platform lifts permitted to serve as part of a *means of egress*.

**1007.5.1 Openness.** Platform lifts on an *accessible means of egress* shall not be installed in a fully enclosed hoistway.

**1007.6 Areas of refuge.** Every required *area of refuge* shall be *accessible* from the space it serves by an *accessible means of egress*. The maximum travel distance from any *accessible* space to an *area of refuge* shall not exceed the travel distance permitted for the occupancy in accordance with Section 1016.1. Every required *area of refuge* shall have direct access to a *stairway* within an *exit enclosure* complying with Sections 1007.3 and 1022 or an elevator complying with Section 1007.4. Where an elevator lobby is used as an *area of refuge*, the shaft

and lobby shall comply with Section (~~(1022.9 for smokeproof enclosures)~~) 708.14.2 for elevator hoistway pressurization except where the elevators are in an *area of refuge* formed by a *horizontal exit* or *smoke barrier*.

**Exceptions:**

1. A *stairway* serving an *area of refuge* is not required to be enclosed where permitted in Sections 1016.1 and 1022.1.

2. (~~(Smokeproof enclosure)~~) Elevator hoistway pressurization is not required for an elevator lobby used as an *area of refuge* not required to be enclosed.

**1007.6.1 Size.** Each *area of refuge* shall be sized to accommodate one *wheelchair space* of 30 inches by 48 inches (762 mm by 1219 mm) for each 200 occupants or portion thereof, based on the *occupant load* of the *area of refuge* and areas served by the *area of refuge*. Such *wheelchair spaces* shall not reduce the required *means of egress* width. Access to any of the required *wheelchair spaces* in an *area of refuge* shall not be obstructed by more than one adjoining *wheelchair space*.

**1007.6.2 Separation.** Each *area of refuge* shall be separated from the remainder of the story by a *smoke barrier* complying with Section 710 or a *horizontal exit* complying with Section 1025. Each *area of refuge* shall be designed to minimize the intrusion of smoke.

**Exception:** *Areas of refuge* located within an *exit enclosure*.

**1007.6.3 Two-way communication.** *Areas of refuge* shall be provided with a two-way communication system complying with Sections 1007.8.1 and 1007.8.2.

\*\*\*

**1007.8 Two-way communication.** A two-way communication system shall be provided at the elevator landing on each *accessible* floor that is one or more stories above or below the *story* of *exit discharge* complying with Sections 1007.8.1 and 1007.8.2.

**Exceptions:**

1. Two-way communication systems are not required at the elevator landing where the two-way communication system is provided within *areas of refuge* in accordance with Section 1007.6.3.
2. Two-way communication systems are not required on floors provided with *exit ramps* conforming to the provisions of Section 1010.

**[W] 1007.8.1 System requirements.** Two-way communication systems shall provide communication between each required location and the fire command center or a central control point location *approved* by the fire department.

Where the central control point is not constantly attended, a two-way communication system shall have a timed automatic telephone dial-out capability to a monitoring location ((~~or 911~~)).

The two-way communication system shall include both audible and visible signals. The two-way communication system shall have a battery backup or an approved alternate source of power that is capable of 90 minutes use upon failure of the normal power source.

**1007.8.2 Directions.** Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system and written identification of the location shall be posted adjacent to the two-way communication system.

\*\*\*

## SECTION 1008

### DOORS, GATES AND TURNSTILES

**1008.1 Doors.** *Means of egress* doors shall meet the requirements of this section. Doors serving a *means of egress* system shall meet the requirements of this section and Section 1020.2. Doors provided for egress purposes in numbers greater than required by this code shall meet the requirements of this section. See Section 3201 for doors swinging over public property.

*Means of egress* doors shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on *means of egress* doors. *Means of egress* doors shall not be concealed by curtains, drapes, decorations or similar materials.

**1008.1.1 Size of doors.** The minimum width of each door opening shall be sufficient for the *occupant load* thereof and shall provide a clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. *Means of egress* doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41-1/2 inches (1054 mm). The height of door openings shall not be less than 80 inches (2032 mm).

#### Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required *means of egress* in Group R-2 and R-3 occupancies.

2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).

3. Door openings to storage closets less than 10 square feet (0.93m<sup>2</sup>) in area shall not be limited by the minimum width.

4. Width of door leaves in revolving doors that comply with Section 1008.1.4.1 shall not be limited.

5. Door openings within a dwelling unit or sleeping unit shall not be less than 78 inches (1981 mm) in height.

6. Exterior door openings in dwelling units and sleeping units, other than the required *exit* door, shall not be less than 76 inches (1930 mm) in height.

7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be an *Accessible unit, Type A unit* or *Type B unit*.

8. Door openings required to be accessible within Type B units shall have a minimum clear width of 31.75 inches (806 mm).

**1008.1.1.1 Projections into clear width.** There shall not be projections into the required clear width lower than 34 inches (864 mm) above the floor or ground. Projections into the clear opening width between 34 inches (864 mm) and 80 inches (2032 mm) above the floor or ground shall not exceed 4 inches (102 mm).



**Exception:** Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the floor.

**1008.1.2 Door swing.** Egress doors shall be of the pivoted or side-hinged swinging type.

**Exceptions:**

1. Private garages, office areas, factory and storage areas with an *occupant load* of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single dwelling unit in Groups R-2 and R-3.
5. In other than Group H occupancies, revolving doors complying with Section 1008.1.4.1.
6. In other than Group H occupancies, horizontal sliding doors complying with Section 1008.1.4.3 are permitted in a *means of egress*.
7. Power-operated doors in accordance with Section 1008.1.4.2.
8. Doors serving a bathroom within an individual sleeping unit in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a *means of egress* from spaces with an *occupant load* of 10 or less.

Doors shall swing in the direction of egress travel where serving an *occupant load* of 50 or more persons or a Group H occupancy.

**1008.1.3 Door opening force.** The force for pushing or pulling open interior swinging egress doors, other than *fire doors*, shall not exceed 5 pounds (22 N). For other swinging doors, as well as sliding and folding doors, the door latch shall release when subjected to a 15-pound (67 N)

1 force. The door shall be set in motion when subjected to a 30-pound (133 N) force. The door  
2 shall swing to a full-open position when subjected to a 15-pound (67 N) force.

3 **1008.1.3.1 Location of applied forces.** Forces shall be applied to the latch side of the door.

4 **1008.1.4 Special doors.** Special doors and security grilles shall comply with the requirements of  
5 Sections 1008.1.4.1 through 1008.1.4.5.

6 **1008.1.4.1 Revolving doors.** Revolving doors shall comply with the following:  
7

8 1. Each revolving door shall be capable of collapsing into a bookfold position with parallel  
9 egress paths providing an aggregate width of 36 inches (914 mm).

10 2. A revolving door shall not be located within 10 feet (3048 mm) of the foot of or top of *stairs*  
11 or escalators. A dispersal area shall be provided between the *stairs* or escalators and the  
12 revolving doors.

13 3. The revolutions per minute (rpm) for a revolving door shall not exceed those shown in Table  
14 1008.1.4.1.

15 4. Each revolving door shall have a side-hinged swinging door which complies with Section  
16 1008.1 in the same wall and within 10 feet (3048 mm) of the revolving door.

17 5. Revolving doors shall not be part of an *accessible route* required by Section 1007 and Chapter  
18 11.

19 **1008.1.4.1.1 Egress component.** A revolving door used as a component of a *means of egress*  
20 shall comply with Section 1008.1.4.1 and the following three conditions:

21 1. Revolving doors shall not be given credit for more than 50 percent of the required egress  
22 capacity.  
23

2. Each revolving door shall be credited with no more than a 50-person capacity.

3. Each revolving door shall be capable of being collapsed when a force of not more than 130 pounds (578 N) is applied within 3 inches (76 mm) of the outer edge of a wing.

**1008.1.4.1.2 Other than egress component.** A revolving door used as other than a component of a *means of egress* shall comply with Section 1008.1.4.1. The collapsing force of a revolving door not used as a component of a *means of egress* shall not be more than 180 pounds (801 N).

**Exception:** A collapsing force in excess of 180 pounds (801 N) is permitted if the collapsing force is reduced to not more than 130 pounds (578 N) when at least one of the following conditions is satisfied:

1. There is a power failure or power is removed to the device holding the door wings in position.

2. There is an actuation of the *automatic sprinkler system* where such system is provided.

3. There is an actuation of a smoke detection system which is installed in accordance with Section 907 to provide coverage in areas within the building which are within 75 feet (22 860 mm) of the revolving doors.

4. There is an actuation of a manual control switch, in an *approved* location and clearly defined, which reduces the holding force to below the 130-pound (578 N) force level.

**1008.1.4.2 Power-operated doors.** Where *means of egress* doors are operated by power, such as doors with a photoelectric-actuated mechanism to open the door upon the approach of a person, or doors with power-assisted manual operation, the design shall be such that in the event of power failure, the door is capable of being opened manually to permit *means of egress* travel or closed where necessary to safeguard *means of egress*. The forces required to open these doors

1 manually shall not exceed those specified in Section 1008.1.3, except that the force to set the  
2 door in motion shall not exceed 50 pounds (220 N). The door shall be capable of swinging from  
3 any position to the full width of the opening in which such door is installed when a force is  
4 applied to the door on the side from which egress is made. Full-power-operated doors shall  
5 comply with BHMA A156.10. Power-assisted and low-energy doors shall comply with BHMA  
6 A156.19.  
7

8 **Exceptions:**

- 9 1. Occupancies in Group I-3.  
10 2. Horizontal sliding doors complying with Section 1008.1.4.3.  
11 3. For a biparting door in the emergency breakout mode, a door leaf located within a multiple-  
12 leaf opening shall be exempt from the minimum 32-inch (813 mm) single-leaf requirement of  
13 Section 1008.1.1, provided a minimum 32-inch (813 mm) clear opening is provided when the  
14 two biparting leaves meeting in the center are broken out.  
15

16 **1008.1.4.3 Horizontal sliding doors.** In other than Group H occupancies, horizontal sliding  
17 doors permitted to be a component of a *means of egress* in accordance with Exception 6 to  
18 Section 1008.1.2 shall comply with all of the following criteria:  
19

- 20 1. The doors shall be power operated and shall be capable of being operated manually in the  
21 event of power failure.  
22 2. The doors shall be openable by a simple method from both sides without special knowledge or  
23 effort.  
24  
25  
26  
27  
28

1 3. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in  
2 motion and 15 pounds (67 N) to close the door or open it to the minimum required width.

3 4. The door shall be openable with a force not to exceed 15 pounds (67 N) when a force of 250  
4 pounds (1100 N) is applied perpendicular to the door adjacent to the operating device.

5 5. The door assembly shall comply with the applicable *fire protection rating* and, where rated,  
6 shall be self-closing or automatic closing by smoke detection in accordance with Section  
7 715.4.8.3, shall be installed in accordance with NFPA 80 and shall comply with Section 715.

8 6. The door assembly shall have an integrated standby power supply.

9 7. The door assembly power supply shall be electrically supervised.

10 8. The door shall open to the minimum required width within 10 seconds after activation of the  
11 operating device.

12  
13  
14 **1008.1.4.4 Access-controlled egress doors.** The entrance doors in a *means of egress* in buildings  
15 with an occupancy in Group A, B, E, I-2, M, R-1 or R-2 and entrance doors to tenant spaces in  
16 occupancies in Groups A, B, E, I-2, M, R-1 and R-2 are permitted to be equipped with an  
17 *approved* entrance and egress access control system which shall be installed in accordance with  
18 all of the following criteria:  
19

20 1. A sensor shall be provided on the egress side arranged to detect an occupant approaching the  
21 doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.

22 2. Loss of power to that part of the access control system which locks the doors shall  
23 automatically unlock the doors.  
24  
25  
26  
27  
28

1 3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48  
2 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the  
3 secured doors. Ready access shall be provided to the manual unlocking device and the device  
4 shall be clearly identified by a sign that reads “PUSH TO EXIT.” When operated, the manual  
5 unlocking device shall result in direct interruption of power to the lock—independent of the  
6 access control system electronics—and the doors shall remain unlocked for a minimum of 30  
7 seconds.  
8

9 4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors,  
10 and the doors shall remain unlocked until the fire alarm system has been reset.  
11

12 5. Activation of the building automatic sprinkler or fire detection system, if provided, shall  
13 automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has  
14 been reset.

15 6. Entrance doors in buildings with an occupancy in Group A, B, E or M shall not be secured  
16 from the egress side during periods that the building is open to the general public.  
17

18 7. The access control system shall be listed or shall be comprised of approved components.

19 **Note:** Components bearing a “recognized component” mark from an approved agency shall  
20 be approved.  
21

22 **1008.1.4.5 Security grilles.** In Groups B, F, M and S, horizontal sliding or vertical security  
23 grilles are permitted at the main exit and shall be openable from the inside without the use of a  
24 key or special knowledge or effort during periods that the space is occupied. The grilles shall  
25 remain secured in the full-open position during the period of occupancy by the general public.  
26

Where two or more *means of egress* are required, not more than one-half of the *exits* or *exit access doorways* shall be equipped with horizontal sliding or vertical security grilles.

**1008.1.5 Floor elevation.** There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope).

**Exceptions:**

1. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply:

1.1. A door is permitted to open at the top step of a ~~(n-interior)~~ *flight of stairs*, provided the door does not swing over the top step.

1.2. Screen doors and storm doors are permitted to swing over *stairs* or landings.

2. Exterior doors as provided for in Section 1003.5, Exception 1, and Section 1020.2, which are not on an *accessible route*.

3. In Group R-3 occupancies not required to be *Accessible units*, *Type A units* or *Type B units*, the landing at an exterior doorway shall not be more than 73/4 inches (197 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door, does not swing over the landing.

4. Variations in elevation due to differences in finish materials, but not more than 1/2 inch (12.7 mm).

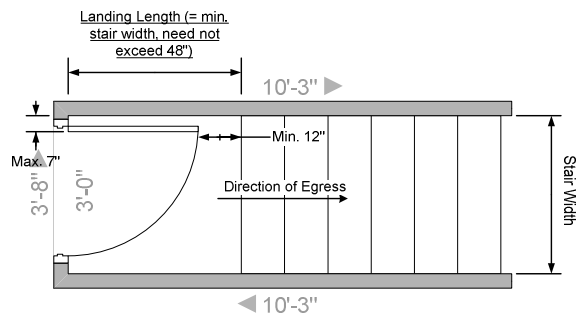
5. Exterior decks, patios or balconies that are part of *Type B* dwelling units, have impervious surfaces and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the dwelling unit.

**1008.1.6 Landings at doors.** Landings shall have a width not less than the width of the *stairway* or the door, whichever is greater. Doors in the fully open position shall not reduce a required dimension by more than 7 inches (178 mm). When a landing serves an *occupant load* of 50 or more, doors in any position shall not reduce the landing to less than one-half its required width. When doors open over landings, doors in any position shall not reduce the landing length to less than 12 inches (305 mm). Landings shall have a length measured in the direction of travel of not less than 44 inches (1118 mm).

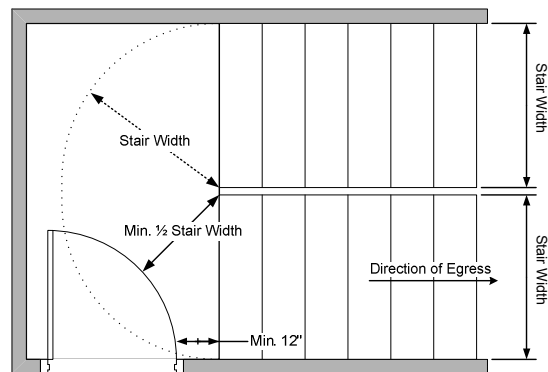
**Exception:** Landing length in the direction of travel in Groups R-3 and U and within individual units of Group R-2 need not exceed 36 inches (914 mm).

**Interpretation I1008.1.6:** Landing length, width and slope shall be measured as specified in Section 1009.5 and 1009.6.1. See Figures 1008.1.6(1), 1008.1.6(2) and 1008.1.6(3) for illustrations of the requirements of this section.

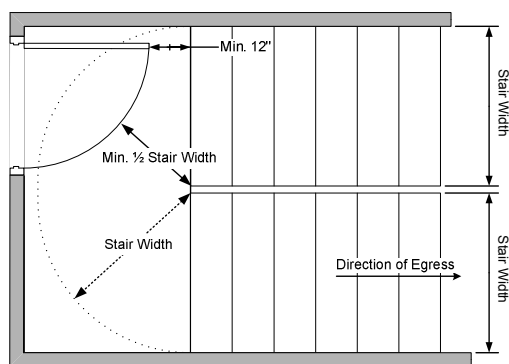




**Figure 1008.1.6(1)**  
 (Landing Dimensions Only)



**Figure 1008.1.6(2)**  
 (Landing Dimensions Only)



**Figure 1008.1.6(3)**  
 (Landing Dimensions Only)

**1008.1.7 Thresholds.** Thresholds at doorways shall not exceed 3/4 inch (19.1 mm) in height for sliding doors serving dwelling units or 1/2 inch (12.7 mm) for other doors. Raised thresholds and

1 floor level changes greater than 1/4 inch (6.4 mm) at doorways shall be beveled with a slope not  
2 greater than one unit vertical in two units horizontal (50-percent slope).

3 **Exception:** The threshold height shall be limited to 73/4 inches (197 mm) where the occupancy  
4 is Group R-2 or  
5 R-3; the door is an exterior door that is not a component of the required *means of egress*; the  
6 door, other than an exterior storm or screen door, does not swing over the landing or step; and the  
7 doorway is not on an *accessible route* as required by Chapter 11 and is not part of an *Accessible*  
8 *unit, Type A unit or Type B unit.*

10 **1008.1.8 Door arrangement.** Space between two doors in a series shall be 48 inches (1219 mm)  
11 minimum plus the width of a door swinging into the space. Doors in a series shall swing either in  
12 the same direction or away from the space between the doors.

14 **Exceptions:**

- 15 1. The minimum distance between horizontal sliding power-operated doors in a series shall be 48  
16 inches (1219 mm).  
17  
18 2. Storm and screen doors serving individual dwelling units in Groups R-2 and R-3 need not be  
19 spaced 48 inches (1219 mm) from the other door.  
20  
21 3. Doors within individual dwelling units in Groups R-2 and R-3 other than within *Type A*  
22 dwelling units.

23 **1008.1.9 Door operations.** Except as specifically permitted by this section egress doors shall be  
24 readily openable from the egress side without the use of a key or special knowledge or effort.

**1008.1.9.1 Hardware.** Door handles, pulls, latches, locks and other operating devices on doors required to be *accessible* by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate.

**1008.1.9.2 Hardware height.** Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

**Exception:** Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum above the finished floor or ground, provided the self-latching devices are not also self-locking devices operated by means of a key, electronic opener or integral combination lock.

**1008.1.9.3 Locks and latches.** Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint as approved by the building official.
2. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
  - 2.1. The locking device is readily distinguishable as locked;
  - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating:  
**THIS DOOR TO REMAIN UNLOCKED ((WHEN BUILDING IS OCCUPIED)) DURING**

BUSINESS HOURS. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and

2.3. The use of the key-operated locking device is revokable by the *building official* for due cause.

3. Where egress doors are used in pairs, *approved* automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware on the egress side of the door.

4. Doors from individual dwelling or sleeping units of Group R occupancies having an *occupant load* of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.

5. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.

6. Approved, listed locks without delayed egress shall be permitted in Group R-2 boarding homes licensed by Washington state, provided that:

6.1. The clinical needs of one or more patients require specialized security measures for their safety.

6.2. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.

6.3. The doors unlock upon loss of electrical power controlling the lock or lock mechanism.

6.4. The lock shall be capable of being deactivated by a signal from a switch located in an approved location.

6.5. There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.

7. Doors from elevator lobbies providing access to exits are permitted to be locked during or after business hours where items 7.1 through 7.5 are satisfied.

7.1. The lobby doors shall unlock automatically upon fire alarm.

7.2. The lobby doors shall unlock automatically upon power loss.

7.3. The alarm system shall include smoke detection in the elevator lobby and at least two detectors on the tenant side within 15 feet of the door;

7.4. Access through the tenant portion of the building to both exits shall be unobstructed;

and

7.5. The building shall have an automatic sprinkler system throughout in accordance with Section 903.3.1.1 or 903.3.1.2.

**1008.1.9.4 Bolt locks.** Manually operated flush bolts or surface bolts are not permitted on required means of egress doors.

**Exceptions:**

1. On doors not required for egress in individual dwelling units or sleeping units.
2. Where a pair of doors serves a storage or equipment room, manually operated edge- or surface-mounted bolts or self-latching flush bolts are permitted on the inactive leaf.
3. Where a pair of doors serves an *occupant load* of less than 50 persons in a Group B, F or S occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf. The inactive leaf shall contain no doorknobs, panic bars or similar operating hardware.

4. Where a pair of doors serves a Group B, F or S occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf provided such inactive leaf is not needed to meet egress width requirements and the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1. The inactive leaf shall contain no doorknobs, panic bars or similar operating hardware.

5. Where a pair of doors serves patient care rooms in Group I-2 occupancies, self-latching edge or surface-mounted bolts are permitted on the inactive leaf provided that the inactive leaf is not needed to meet egress width requirements and the inactive leaf contains no doorknobs, panic bars or similar operating hardware.

**1008.1.9.5 Unlatching.** The unlatching of any door or leaf shall not require more than one operation.

**Exceptions:**

1. Places of detention or restraint.
2. Where manually operated bolt locks are permitted by Section 1008.1.9.4.
3. Doors with automatic flush bolts as permitted by Section 1008.1.9.3, Exception 3.
4. Doors from individual dwelling units and sleeping units of Group R occupancies as permitted by Section 1008.1.9.3, Exception 4.

~~((1008.1.9.5.1 Closet and bathroom doors in Group R-4 occupancies. In Group R-4 occupancies, closet doors that latch in the closed position shall be openable from inside the closet, and bathroom doors that latch in the closed position shall be capable of being unlocked from the ingress side.))~~

**1008.1.9.6 Special locking arrangements in Group I-2.** *Approved* ~~((delayed egress))~~ locks shall be permitted in a Group I-2 occupancy where the clinical needs of persons receiving care require such locking. ~~((Delayed egress locks))~~ Locks shall be permitted in such occupancies where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. ~~((A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an exit.))~~

1. The doors unlock upon actuation of the *automatic sprinkler system* or automatic fire detection system.

2. The doors unlock upon loss of power controlling the lock or lock mechanism.

3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other *approved* location.

4. The procedures for the operation(s) of the unlocking system shall be described and *approved* as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.

5. ~~((All clinical staff shall have the keys, codes or other means necessary to operate the locking devices.))~~ There is a system, such as a keypad and code, in place that allows visitors, staff persons and appropriate residents to exit. Instructions for exiting shall be posted within six feet of the door.

6. Emergency lighting shall be provided at the door.

**Exception:** Items 1 through 3 and 5 shall not apply to doors to areas where persons who, because of clinical needs, require restraint or containment as part of the function of a Group I-2 mental hospital provided that all clinical staff shall have the keys, codes or other means necessary to operate the locking devices..

**1008.1.9.7 Delayed egress locks.** *Approved, listed*, delayed egress locks shall be permitted to be installed on doors serving any occupancy except Group A, E and H occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved* automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below.

Delayed egress locks are permitted in libraries in both Group A and E occupancies in locations other than at main exit doors, and in Group E day care occupancies. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an *exit*.

1. The doors unlock upon actuation of the *automatic sprinkler system* or automatic fire detection system.

2. The doors unlock upon loss of power controlling the lock or lock mechanism.

3. The door locks shall have the capability of being unlocked by a signal from the fire command center.

4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for 1 second to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the



1 door. Once the door lock has been released by the application of force to the releasing device,  
2 relocking shall be by manual means only.

3 **Exception:** Where approved, a delay of not more than 30 seconds is permitted.

4 5. A sign shall be provided on the door located above and within 12 inches (305 mm) of the  
5 release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15  
6 [30] SECONDS.  
7

8 6. Emergency lighting shall be provided at the door.

9 **1008.1.9.8 Electromagnetically locked egress doors.** Doors in the *means of egress* that are not  
10 otherwise required to have panic hardware in buildings with an occupancy in Group A, B, E, M,  
11 R-1 or R-2 and doors to tenant spaces in Group A, B, E, M, R-1 or R-2 shall be permitted to be  
12 electromagnetically locked if equipped with *listed* hardware that incorporates a built-in switch  
13 and meet the requirements below:  
14

15 1. The *listed* hardware that is affixed to the door leaf has an obvious method of operation that is  
16 readily operated under all lighting conditions.  
17

18 2. The *listed* hardware is capable of being operated with one hand.

19 3. Operation of the *listed* hardware releases to the electromagnetic lock and unlocks the door  
20 immediately.

21 4. Loss of power to the *listed* hardware automatically unlocks the door.  
22

23 **1008.1.9.9 Locking arrangements in correctional facilities.** In occupancies in Groups A-2, A-  
24 3, A-4, B, E,  
25  
26  
27  
28

1 F, I-2, I-3, M and S within correctional and detention facilities, doors in *means of egress* serving  
2 rooms or spaces occupied by persons whose movements are controlled for security reasons shall  
3 be permitted to be locked when equipped with egress control devices which shall unlock  
4 manually and by at least one of the following means:

- 5 1. Activation of an *automatic sprinkler system* installed in accordance with Section 903.3.1.1;
- 6 2. Activation of an *approved* manual alarm box; or
- 7 3. A signal from a *constantly attended location*.

8  
9 **1008.1.9.10 Stairway doors.** *Interior stairway means of egress* doors shall be openable from  
10 both sides without the use of a key or special knowledge or effort.

11 **Exceptions:**

- 12 1. *Stairway* discharge doors shall be openable from the egress side and shall only be locked from  
13 the opposite side.
- 14 2. This section shall not apply to doors arranged in accordance with Section 403.5.3.
- 15 3. In *stairways* serving not more than four stories, doors are permitted to be locked from the side  
16 opposite the egress side, provided they are openable from the egress side and capable of being  
17 unlocked simultaneously without unlatching upon a signal from the fire command center, if  
18 present, or a signal by emergency personnel from a single location inside the main entrance to the  
19 building.

20  
21 **1008.1.10 Panic and fire exit hardware.** Doors serving a Group H occupancy and doors serving  
22 rooms or spaces with an *occupant load* of 50 or more in a Group A or E occupancy shall not be  
23 provided with a latch or lock unless it is panic hardware or *fire exit hardware*.

**Exception:** A main *exit* of a Group A occupancy in compliance with Section 1008.1.9.3, Item 2.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide that contain overcurrent devices, switching devices or control devices with *exit* or *exit access* doors shall be equipped with panic hardware or *fire exit hardware*. The doors shall swing in the direction of egress travel.

**1008.1.10.1 Installation.** Where panic or *fire exit hardware* is installed, it shall comply with the following:

1. Panic hardware shall be *listed* in accordance with UL 305;
2. *Fire exit hardware* shall be *listed* in accordance with UL 10C and UL 305;
3. The actuating portion of the releasing device shall extend at least one-half of the door leaf width; and
4. The maximum unlatching force shall not exceed 15 pounds (67 N).

**1008.1.10.2 Balanced doors.** If *balanced doors* are used and panic hardware is required, the panic hardware shall be the push-pad type and the pad shall not extend more than one-half the width of the door measured from the latch side.

\*\*\*

## SECTION 1009

### STAIRWAYS

**1009.1 Stairway width.** The width of *stairways* shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm). See Section 1007.3 for *accessible means of egress stairways*.

**Exceptions:**

1. *Stairways* serving an *occupant load* of less than 50 shall have a width of not less than 36 inches (914 mm).
2. *Spiral stairways* as provided for in Section 1009.9.
3. *Aisle stairs* complying with Section 1028.
4. Where an incline platform lift or stairway chairlift is installed on *stairways* serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, a clear passage width not less than 20 inches (508 mm) shall be provided. If the seat and platform can be folded when not in use, the distance shall be measured from the folded position.
5. Stairways that are neither part of a required means of egress nor an accessible route.

\*\*\*

**1009.4 Stair treads and risers.** *Stair* treads and risers shall comply with Sections 1009.4.1 through 1009.4.5.

**1009.4.1 Dimension reference surfaces.** For the purpose of this section, all dimensions are exclusive of carpets, rugs or runners.

**1009.4.2 Riser height and tread depth.** *Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) measured between the vertical planes of the

foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the *stair*.

**Exceptions:**

1. *Alternating tread devices* in accordance with Section 1009.10.
2. Ship ladders in accordance with Section 1009.11.
3. *Spiral stairways* in accordance with Section 1009.9.
4. *Aisle stairs* in assembly seating areas where the *stair* pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1028.11.2.
5. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 7-3/4 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum *winder* tread depth at the walkline shall be 10 inches (254 mm); and the minimum *winder* tread depth shall be 6 inches (152 mm). A *nosing* not less than 3/4 inch (19.1 mm) but not more than 1-1/4 inches (32 mm) shall be provided on *stairways* with solid risers where the tread depth is less than 11 inches (279 mm).
6. See Section 3404.1 for the replacement of existing *stairways*.
7. In Group I-3 facilities, *stairways* providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m<sup>2</sup>) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

**1009.4.3 Winder treads.** *Winder* treads are not permitted in *means of egress stairways* except within a dwelling unit.

**Exceptions:**

1. Curved *stairways* in accordance with Section 1009.8.
2. *Spiral stairways* in accordance with Section 1009.9.

**1009.4.4 Dimensional uniformity.** *Stair* treads and risers shall be of uniform size and shape.

The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any *flight* of *stairs*. The greatest *winder* tread depth at the walkline within any *flight* of *stairs* shall not exceed the smallest by more than 3/8 inch (9.5 mm).

**Exceptions:**

1. Nonuniform riser dimensions of *aisle stairs* complying with Section 1028.11.2.
2. Consistently shaped *winders*, complying with Section 1009.4.2, differing from rectangular treads in the same *stairway flight*.

Where the bottom or top riser adjoins a sloping *public way*, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope, ~~((to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8 percent slope) of stairway width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-~~

resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).))

**1009.4.5 Profile.** The radius of curvature at the leading edge of the tread shall be not greater than 9/16 inch (14.3 mm). Beveling of *nosings* shall not exceed 9/16 inch (14.3 mm). Risers shall be solid and vertical or sloped under the tread above from the underside of the *nosing* above at an angle not more than 30 degrees (0.52 rad) from the vertical. The leading edge (*nosings*) of treads shall project not more than 1-1/4 inches (32 mm) beyond the tread below and all projections of the leading edges shall be of uniform size, including the leading edge of the floor at the top of a *flight*.

**Exceptions:**

1. Solid risers are not required for *stairways* that are not required to comply with Section 1007.3, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
2. Solid risers are not required for occupancies in Group I-3 or in Group F, H and S occupancies other than areas accessible to the public. There are no restrictions on the size of the opening in the riser.
3. Solid risers are not required for *spiral stairways* constructed in accordance with Section 1009.9.
4. Solid risers are not required for *alternating tread devices* constructed in accordance with Section 1009.10.

\*\*\*

**1009.7 Vertical rise.** A *flight of stairs* shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

**Exceptions:**

1. *Aisle stairs* complying with Section 1028.
2. *Alternating tread devices* used as a *means of egress* shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.
3. Stairways that are not part of a required means of egress.

\*\*\*

**1009.13 Stairway to roof.** In buildings four or more stories above grade plane, one stairway shall extend to the roof surface unless the roof has a slope steeper than four units vertical in 12 units horizontal (33-percent slope). In buildings without an occupied roof, access to the roof from the top story shall be permitted to be by an alternating tread device.

**1009.13.1 Roof access.** Where a stairway is provided to a roof, access to the roof shall be provided through a penthouse complying with Section 1509.2.

**Exception:** In buildings without an occupied roof, access to the roof shall be permitted to be a roof hatch or trap door not less than 16 square feet (1.5 m<sup>2</sup>) in area and having a minimum dimension of 2 feet 6 inches (~~(((614))~~) 762 mm).

**1009.13.2 Protection at roof hatch openings.** Where the roof hatch opening providing the required access is located within 10 feet (3049 mm) of the roof edge, such roof access or roof edge shall be protected by guards installed in accordance with the provisions of Section 1013.

\*\*\*



**[W] 1009.15 Stairways in individual dwelling units.** Stairs or ladders within individual dwelling units used for access to areas of 200 square feet (18.6 m<sup>2</sup>) or less which do not contain the primary bathroom or kitchen are exempt from the requirements of Section 1009.

## SECTION 1010

### RAMPS

**1010.1 Scope.** The provisions of this section shall apply to *ramps* used as a component of a *means of egress*.

#### Exceptions:

1. Other than *ramps* that are part of the *accessible routes* providing access in accordance with Sections 1108.2 through 1108.2.4 and 1108.2.6, ramped *aisles* within assembly rooms or spaces shall conform with the provisions in Section 1028.11.

2. Curb *ramps* shall comply with ICC A117.1.

3. Vehicle ramps in parking garages for pedestrian *exit access* shall not be required to comply with Sections 1010.3 through 1010.9 when they are not an *accessible route* serving *accessible* parking spaces((;)) or other required accessible elements ((~~or part of an accessible means of egress~~)).

4. In a parking garage where one accessible means of egress serving accessible parking spaces or other accessible elements is provided, a second accessible means of egress serving that area shall be permitted to include a vehicle ramp that does not comply with Sections 1010.4, 1010.5 and 1010.8. A landing complying with Sections 1010.6.1 and 1010.6.4 shall be provided at any change of direction in the accessible means of egress.

\*\*\*

## SECTION 1011

### EXIT SIGNS

**1011.1 Where required.** *Exits* and *exit access* doors shall be marked by an *approved exit* sign readily visible from any direction of egress travel. The path of egress travel to *exits* and within *exits* shall be marked by readily visible *exit* signs to clearly indicate the direction of egress travel in cases where the *exit* or the path of egress travel is not immediately visible to the occupants. Intervening *means of egress* doors within *exits* shall be marked by *exit* signs. *Exit* sign placement shall be such that no point in an *exit access corridor* or *exit passageway* is more than 100 feet (30 480 mm) or the *listed* viewing distance for the sign, whichever is less, from the nearest visible *exit* sign. Either exit signs or exit placards shall be located at any other location determined by the building official to be necessary to clearly indicate the direction of egress.

#### Exceptions:

1. *Exit* signs are not required in rooms or areas that require only one *exit* or *exit access* other than in buildings designed with a single exit stairway according to Section 1021.2.1 item 3.
2. Main exterior *exit* doors or gates that are obviously and clearly identifiable as *exits* need not have *exit* signs where *approved* by the *building official*.
3. *Exit* signs are not required in occupancies in Group U and individual sleeping units or dwelling units in Group R-1, R-2 or R-3.
4. *Exit* signs are not required in dayrooms, sleeping rooms or dormitories in occupancies in Group I-3.

5. In occupancies in Groups A-4 and A-5, *exit* signs are not required on the seating side of vomitories or openings into seating areas where *exit* signs are provided in the concourse that are readily apparent from the vomitories. Egress lighting is provided to identify each vomitory or opening within the seating area in an emergency.

6. Exit signs are not required on exterior stairways serving exterior exit balconies.

**Interpretation I1011.1:** Exit placards are permitted to be used to identify exits in occupancies where exit signs are not required.

\*\*\*

**1011.5 Externally illuminated exit signs.** Externally illuminated *exit* signs shall comply with Sections 1011.5.1 through 1011.5.3.

**1011.5.1 Graphics.** Every *exit* sign, exit placard and directional *exit* sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than 3/4 inch (19.1 mm) wide. The word “EXIT” shall have letters having a width not less than 2 inches (51 mm) wide, except the letter “I,” and the minimum spacing between letters shall not be less than 3/8 inch (9.5 mm). Signs and placards larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height.

The word “EXIT” shall be in high contrast with the background and shall be clearly discernible when the means of *exit* sign illumination is or is not energized. If a chevron directional indicator is provided as part of the *exit* sign or placard, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.

**Exception:** Existing exit signs or placards with letters at least 5 inches (127 mm) in height are permitted to be reused.

**1011.5.2 Exit sign illumination.** The face of an *exit* sign illuminated from an external source shall have an intensity of not less than 5 foot-candles (54 lux).

**1011.5.3 Power source.** *Exit* signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27.

**Exception:** *Approved exit* sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency ((~~electrical~~)) power system.

**1011.6 Not-an-exit warnings.** Placards reading “NOT AN EXIT” shall be installed at all doorways, passageways or stairways which are not exits, exit accesses or exit discharges, and which may be mistaken for an exit. A sign indicating the use of the doorway, passageway or stairway, such as “TO BASEMENT”, “STORE ROOM”, “LINEN CLOSET”, is permitted in lieu of the “NOT AN EXIT” sign.

## SECTION 1012

### HANDRAILS

\*\*\*

**1012.4 Continuity.** *Handrail*-gripping surfaces shall be continuous, without interruption by newel posts or other obstructions.

**Exceptions:**

1. *Handrails* within dwelling units are permitted to be interrupted by a newel post at a turn or landing.

2. Within a dwelling unit, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.

3. *Handrail* brackets or balusters attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within 1-1/2 inches (38 mm) of the bottom of the *handrail* shall not be considered obstructions. For each 1/2 inch (12.7 mm) of additional *handrail* perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of 1-1/2 inches (38 mm) shall be permitted to be reduced by 1/8 inch (3 mm).

4. Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the *handrail* gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to rash rails or bumper guards.

5. Handrails on stairways that are not part of a required means of egress need not be continuous.

\*\*\*

**1012.6 Handrail extensions.** *Handrails* shall return to a wall, *guard* or the walking surface or shall be continuous to the handrail of an adjacent *stair flight* or ramp run. Where *handrails* are not continuous between *flights*, the *handrails* shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom

riser. At *ramps* where *handrails* are not continuous between runs, the *handrails* shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of *ramp* runs. The extensions of *handrails* shall be in the same direction of the *stair flights* at *stairways* and the *ramp* runs at *ramps*.

**Exceptions:**

1. *Handrails* within a dwelling unit that is not required to be *accessible* need extend only from the top riser to the bottom riser.

2. *Aisle handrails* in Group A and E occupancies in accordance with Section 1028.13.

3. *Handrails* for *alternating tread devices* and ship ladders are permitted to terminate at a location vertically above the top and bottom risers. *Handrails* for *alternating tread devices* and ship ladders are not required to be continuous between *flights* or to extend beyond the top or bottom risers.

4. Handrail extensions are not required on handrails on stairways that are not part of a required means of egress.

\*\*\*

**SECTION 1014**

**EXIT ACCESS**

\*\*\*

**1014.2 Egress through intervening spaces.** Egress through intervening spaces shall comply with this section.

1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an *exit*.

**Exception:** *Means of egress* are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.

2. An *exit access* shall not pass through a room that can be locked to prevent egress.

3. *Means of egress* from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms.

4. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.

**Exceptions:**

1. *Means of egress* are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit.

2. *Means of egress* are not prohibited through stockrooms in Group M occupancies when all of the following are met:

2.1. The stock is of the same hazard classification as that found in the main retail area;

2.2. Not more than 50 percent of the *exit access* is through the stockroom;

2.3. The stockroom is not subject to locking from the egress side; and

2.4. There is a demarcated, minimum 44-inch-wide (1118 mm) *aisle* defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the *exit* without obstructions.

5. Unless approved by the building official, where two or more exits are required, exit travel shall not pass through an exit enclosure as the only way to reach another exit.

**1014.2.1 Multiple tenants.** Where more than one tenant occupies any one floor of a building or structure, each tenant space, dwelling unit and sleeping unit shall be provided with access to the required *exits* without passing through adjacent tenant spaces, dwelling units and sleeping units.

**Exception:** The *means of egress* from a smaller tenant space shall not be prohibited from passing through a larger adjoining tenant space where such rooms or spaces of the smaller tenant occupy less than 10 percent of the area of the larger tenant space through which they pass; are the same or similar occupancy group; a discernable path of egress travel to an *exit* is provided; and the *means of egress* into the adjoining space is not subject to locking from the egress side. A required *means of egress* serving the larger tenant space shall not pass through the smaller tenant space or spaces.

**[W] 1014.2.2 Group I-2.** Habitable spaces and suites in Group I-2 occupancies are permitted to comply with this Section 1014.2.2.

**1014.2.2.1 Exit access doors.** Habitable (~~((rooms or))~~) spaces and suites in Group I-2 occupancies shall have an *exit access* door leading directly to a *corridor*.

**Exception:** Rooms with *exit* doors opening directly to the outside at ground level.



**1014.2.2.2 Exit access through suites.** Exit access from areas not classified as a Group I-2

occupancy suite shall not pass through a suite. In a suite required to have more than one exit, one exit access may pass through an adjacent suite if all other requirements of Section 1014.2 are satisfied.

**1014.2.2.3 Separation.** Suites in Group I-2 occupancies shall be separated from other portions of the building by a smoke partition complying with Section 711. Partitions within suites are not required to be smoke-resistant or fire-resistance-rated unless required by another section of this code.

~~((1014.2.3))~~ **1014.2.2.4 Suites ((in)) containing patient sleeping areas.** Patient sleeping areas in Group I-2 occupancies shall be permitted to be divided into *suites* with one intervening room if one of the following conditions is met:

1. The intervening room within the *suite* is not used as an *exit access* for more than eight patient beds.
2. The arrangement of the *suite* allows for direct and constant visual supervision by nursing personnel.

~~((1014.2.3.1))~~ **1014.2.2.4.1 Area.** *Suites* of sleeping rooms shall not exceed 5,000 square feet (465 m<sup>2</sup>).

~~((1014.2.3.2))~~ **1014.2.2.4.2 Exit access.** Any patient sleeping room, or any *suite* that includes patient sleeping rooms, of more than 1,000 square feet (93 m<sup>2</sup>) shall have at least two *exit access* doors ~~((remotely))~~ located ~~((from each other))~~ in accordance with Section 1015.2.

1 ~~((1014.2.3.3))~~ **1014.2.2.4.3 Travel distance.** The travel distance between any point in a *suite* of  
2 sleeping rooms and an *exit access* door of that *suite* shall not exceed 100 feet (30 480 mm). The  
3 travel distance between any point in a Group I-2 occupancy patient sleeping room and an exit  
4 access door in that room shall not exceed 50 feet (15,240 mm).

5 ~~((1014.2.4))~~ **1014.2.2.5 Suites ((in areas other than)) not containing patient sleeping areas.**

6  
7 Areas other than patient sleeping areas in Group I-2 occupancies shall be permitted to be divided  
8 into *suites* that comply with Sections 1014.2.2.5.1 through 1014.2.2.5.4.

9 ~~((1014.2.4.1))~~ **1014.2.2.5.1 Area.** *Suites* of rooms, other than patient sleeping rooms, shall not  
10 exceed 10,000 square feet (929 m2).

11 ~~((1014.2.4.2))~~ **1014.2.2.5.2 Exit access.** Any room or *suite* of rooms, other than patient sleeping  
12 rooms, of more than 2,500 square feet (232 m2) shall have at least two *exit access* doors  
13  
14 ~~((remotely))~~ located ~~((from each other))~~ in accordance with Section 1015.2.

15 ~~((1014.2.4.3))~~ **1014.2.2.5.3 One intervening room.** For rooms other than patient sleeping rooms,  
16 *suites* of rooms are permitted to have one intervening room if the travel distance within the *suite*  
17 to the *exit access* door is not greater than 100 feet (30 480 mm).

18  
19 ~~((1014.2.4.4))~~ **1014.2.2.5.4 Two intervening rooms.** For rooms other than patient sleeping  
20 rooms located within a *suite*, *exit access* travel from within the *suite* shall be permitted through  
21 two intervening rooms where the travel distance to the *exit access* door is not greater than 50 feet  
22 (15 240 mm).

23  
24 ~~((1014.2.5 Exit access through suites. Exit access from all other portions of a building not~~  
25 ~~classified as a *suite* in a Group I-2 occupancy shall not pass through a *suite*.~~

~~**1014.2.6 Travel distance.** The travel distance between any point in a Group I-2 occupancy patient sleeping room and an *exit access* door in that room shall not exceed 50 feet (15 240 mm).~~

~~**1014.2.7 Separation.** Suites in Group I-2 occupancies shall be separated from other portions of the building by a *smoke partition* complying with Section 711.))~~

**1014.3 Common path of egress travel.** In occupancies other than Groups H-1, H-2 and H-3, the *common path of egress travel* shall not exceed 75 feet (22 860 mm). In Group H-1, H-2 and H-3 occupancies, the *common path of egress travel* shall not exceed 25 feet (7620 mm). For *common path of egress travel* in Group A occupancies and assembly occupancies accessory to Group E occupancies having fixed seating, see Section 1028.8.

**Exceptions:**

1. The length of a *common path of egress travel* in Group B, F and S occupancies shall not be more than 100 feet (30 480 mm), provided that the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
2. Where a tenant space in Group B, S and U occupancies has an *occupant load* of not more than 30, the length of a *common path of egress travel* shall not be more than 100 feet (30 480 mm).
3. The length of a *common path of egress travel* in a Group I-3 occupancy shall not be more than 100 feet (30 480 mm).
4. The length of a common path of egress travel in a Group R-2 or R-3 occupancy shall not be more than 125 feet (38 100 mm), provided that the building is protected throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

**SECTION 1015**

## EXIT AND EXIT ACCESS DOORWAYS

**1015.1 Exits or exit access doorways from spaces.** Two *exits* or *exit access doorways* from any space shall be provided where one of the following conditions exists:

**Exception:** Group I-2 occupancies shall comply with Section 1014.2.2 through 1014.2.7.

1. The *occupant load* of the space exceeds one of the values in Table 1015.1.

**Exception:** In Group R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual dwelling units with a maximum *occupant load* of 20 where the dwelling unit is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.

2. The *common path of egress travel* exceeds one of the limitations of Section 1014.3.

3. Where required by Section 1015.3, 1015.4, 1015.5, 1015.6 or 1015.6.1.

Where a building contains mixed occupancies, each individual occupancy shall comply with the applicable requirements for that occupancy. Where applicable, cumulative *occupant loads* from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1.

**Note:** See Section 1008.1.9.3 for conditions in which exit access doors from elevator lobbies are permitted to be locked.

**1015.1.1 Three or more exits or exit access doorways.** Three *exits* or *exit access doorways* shall be provided from any space with an *occupant load* of 501 to 1,000. Four *exits* or *exit access doorways* shall be provided from any space with an *occupant load* greater than 1,000.

### TABLE 1015.1

## SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD
A, B, E <sup>a</sup> , F, M, U	49
H-1, H-2, H-3	3
H-4, H-5, I-1, I-3, I-4, R	10
S	29

a. Day care maximum occupant load is 10.

**1015.2 Exit or exit access doorway arrangement.** Required *exits* shall be located in a manner that makes their availability obvious. *Exits* shall be unobstructed at all times. *Exit* and *exit access doorways* shall be arranged in accordance with Sections 1015.2.1 and 1015.2.2.

**1015.2.1 Two exits or exit access doorways.** Where two *exits* or *exit access doorways* are required from any portion of the *exit access*, the *exit* doors or *exit access doorways* shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between *exit* doors or *exit access doorways*. Interlocking or *scissor stairs* and stairways that share a wall with other exit enclosures shall be counted as one *exit stairway*.

### Exceptions:

1. Where *exit enclosures* are provided as a portion of the required *exit* and are interconnected by a 1-hour fire-resistance-rated *corridor* conforming to the requirements of Section 1018, the

required *exit* separation shall be measured along the shortest direct line of travel within the  
*corridor*.

**Interpretation I1015.2:** Exception 1 applies only where corridors have a one-hour fire-  
resistance-rating even where Section 1018 would allow non-rated corridors.

2. Where a building is equipped throughout with an *automatic sprinkler system* in accordance  
with Section  
903.3.1.1 or 903.3.1.2, the separation distance of the *exit* doors or *exit access doorways* shall not  
be less than one-third of the length of the maximum overall diagonal dimension of the area  
served.

3. Where it is not practical to separate exits by one-half the diagonal dimension, exits from retail  
and office tenant spaces in Group B and M occupancies and within dwelling units shall be as  
far apart as reasonably practicable as determined by the building official.

**1015.2.2 Three or more exits or exit access doorways.** Where access to three or more *exits* is  
required, at least two *exit* doors or *exit access doorways* shall be arranged in accordance with the  
provisions of Section 1015.2.1.

\*\*\*

## SECTION 1016

### EXIT ACCESS TRAVEL DISTANCE

**1016.1 Travel distance limitations.** *Exits* shall be so located on each *story* such that the  
maximum length of *exit access* travel, measured from the most remote point within a *story* along  
the natural and unobstructed path of egress travel to an *exterior exit* door at the *level of exit*

1 *discharge*, an entrance to a vertical *exit enclosure*, an *exit passageway*, a *horizontal exit*, an  
2 *exterior exit stairway* or an exterior *exit ramp*, shall not exceed the distances given in Table  
3 1016.1.

4 **Exceptions:**

5 1. Travel distance in *open parking garages* is permitted to be measured to the closest riser of  
6 open *exit stairways*.  
7

8 2. In outdoor facilities with open *exit access* components and open *exterior exit stairways* or *exit*  
9 *ramps*, travel distance is permitted to be measured to the closest riser of an *exit stairway* or the  
10 closest slope of the *exit ramp*.  
11

12 3. In other than occupancy Groups H and I, the *exit access* travel distance to a maximum of 50  
13 percent of the *exits* is permitted to be measured from the most remote point within a building to  
14 an *exit* using unenclosed *exit access stairways* or *ramps* when connecting a maximum of two  
15 stories. The two connected stories shall be provided with at least two *means of egress*. Such  
16 interconnected stories shall not be open to other stories.  
17

18 4. In other than occupancy Groups H and I, *exit access* travel distance is permitted to be  
19 measured from the most remote point within a building to an *exit* using unenclosed *exit access*  
20 *stairways* or *ramps* in the first and second stories above *grade plane* in buildings equipped  
21 throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1. The first  
22 and second stories above *grade plane* shall be provided with at least two *means of egress*. Such  
23 interconnected stories shall not be open to other stories.  
24  
25  
26  
27  
28

Where applicable, travel distance on unenclosed *exit access stairways* or *ramps* and on connecting stories shall also be included in the travel distance measurement. The measurement along *stairways* shall be made on a plane parallel and tangent to the *stair* tread *nosings* in the center of the *stairway*.

**Note:** Additional exit enclosures or corridors constructed as smoke barriers may be required for standpipe hose connections. See Section 905.4.

**TABLE 1016.1**

**EXIT ACCESS TRAVEL DISTANCE<sup>a</sup>**

<b>OCCUPANCY</b>	<b>WITHOUT SPRINKLER SYSTEM (feet)</b>	<b>WITH SPRINKLER SYSTEM (feet)</b>
A, E, F-1, M, R, S-1	200	250 <sup>b</sup>
I-1	Not Permitted	250 <sup>c</sup>
B	200	300 <sup>c</sup>
F-2, S-2, U	300	400 <sup>c</sup>
H-1	Not Permitted	75 <sup>c</sup>
H-2	Not Permitted	100 <sup>c</sup>
H-3	Not Permitted	150 <sup>c</sup>
H-4	Not Permitted	175 <sup>c</sup>
H-5	Not Permitted	200 <sup>c</sup>



1	I-2, I-3, I-4	Not Permitted	200 <sup>c</sup>
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2 For SI: 1 foot = 304.8 mm.

3 a. See the following sections for modifications to exit access travel distance requirements:

4 Section 402.4: For the distance limitation in malls.

5 Section 404.9: For the distance limitation through an atrium space.

6 Section 407.4: For the distance limitation in Group I-2.

7 Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.

8 Section 411.4: For the distance limitation in special amusement buildings.

9 Section 1014.2.2: For the distance limitation in Group I-2 hospital suites.

10 Section 1015.4: For the distance limitation in refrigeration machinery rooms.

11 Section 1015.5: For the distance limitation in refrigerated rooms and spaces.

12 Section 1021.2: For buildings with one exit.

13 Section 1028.7: For increased limitation in assembly seating.

14 Section 1028.7: For increased limitation for assembly open-air seating.

15 ~~((Section 3103.4: For temporary structures.))~~

16 Section 3104.9: For pedestrian walkways.

17 b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section  
 18 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are  
 19 permitted in accordance with Section 903.3.1.2.

20 c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section  
 21 903.3.1.1.

\*\*\*

## SECTION 1018

### CORRIDORS

**1018.1 Construction.** *Corridors* shall be fire-resistance rated in accordance with Table 1018.1.

The *corridor* walls required to be fire-resistance rated shall comply with Section 709 for *fire partitions*.

#### **Exceptions:**

1. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group E where each room that is used for instruction has at least one door opening directly to the exterior and rooms for assembly purposes have at least one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.

2. A *fire-resistance rating* is not required for *corridors* contained within a dwelling or sleeping unit in an occupancy in Group R.

3. A *fire-resistance rating* is not required for *corridors* in *open parking garages*.

4. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group B which is a space requiring only a single *means of egress* complying with Section 1015.1.

5. In office areas located in buildings of Types IA or IB construction, corridor walls need not be of fire-resistance-rated construction where the corridor side of the corridor walls is finished with materials having a maximum Class B rating as defined in Chapter 8. This exception does not apply to outpatient clinics and medical offices.

6. The occupant load of Group B conference rooms, lunch rooms without grease-producing cooking and other assembly rooms with an occupant load of less than 50 in each room need not be considered when determining whether corridor construction is required, provided such rooms are accessory to an office tenant located in a building of Type IA or IB construction. This provision is permitted to be used in other construction types when the floor on which the assembly room is located is equipped with an automatic sprinkler system.

**TABLE 1018.1**  
**CORRIDOR FIRE-RESISTANCE RATING**

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system <sup>c</sup>
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	<del>((Greater than 10))</del> <u>All</u>	Not Permitted	<del>((0.5))</del> <u>1</u>
I-2 <sup>a</sup> , I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1 <sup>b</sup>

- a. For requirements for occupancies in Group I-2, see Section 407.3.
- b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.7.
- c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.

\*\*\*

**1018.4 Dead ends.** Where more than one *exit* or *exit access doorway* is required, the *exit access* shall be arranged such that there are no dead ends in *corridors* more than ~~((20 feet (6096 mm) in length.))~~ 25 feet 7620 mm) in length.

**Exceptions:**

1. In occupancies in Group I-3 of Occupancy Condition 2, 3 or 4 (see Section 308.4), the dead end in a *corridor* shall not exceed 50 feet (15 240 mm).
2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, ~~((R-4,))~~ S and U, where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the length of the dead-end *corridors* shall not exceed 50 feet (15 240 mm).
3. A dead-end *corridor* shall not be limited in length where the length of the dead-end *corridor* is less than 2.5 times the least width of the dead-end *corridor*.
4. Dead ends are permitted to be 75 feet (22 860 mm) in length in areas containing Group B offices in buildings of Types IA and IB construction, where the cumulative occupant load does not exceed 50 for all areas for which the dead end serves as the only means of egress.

**1018.5 Air movement in corridors.** *Corridors* shall not serve as supply, return, exhaust, relief or ventilation air ducts or plenums except as allowed by Mechanical Code Section 601.2.

**((Exceptions:**

- ~~1. Use of a *corridor* as a source of makeup air for exhaust systems in rooms that open directly onto such *corridors*, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted, provided that each such *corridor* is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the *corridor*.~~
- ~~2. Where located within a dwelling unit, the use of *corridors* for conveying return air shall not be prohibited.~~
- ~~3. Where located within tenant spaces of 1,000 square feet (93 m<sup>2</sup>) or less in area, utilization of *corridors* for conveying return air is permitted.~~
- ~~4. Incidental air movement from pressurized rooms within health care facilities, provided that the *corridor* is not the primary source of supply or return to the room.))~~

**1018.5.1 Corridor ceiling.** Use of the space between the *corridor* ceiling and the floor or roof structure above as a return air plenum is permitted for one or more of the following conditions:

1. The *corridor* is not required to be of fire-resistance-rated construction;
2. The *corridor* is separated from the plenum by fire-resistance-rated construction;
3. The air-handling system serving the *corridor* is shut down upon activation of the air-handling unit *smoke detectors* required by the *International Mechanical Code*;
4. The air-handling system serving the *corridor* is shut down upon detection of sprinkler waterflow where the building is equipped throughout with an *automatic sprinkler system*; or
5. The space between the *corridor* ceiling and the floor or roof structure above the *corridor* is used as a component of an *approved* engineered smoke control system.

**1018.6 Corridor continuity.** Fire-resistance-rated corridors shall be continuous from the point of entry to an *exit*, and shall not be interrupted by intervening rooms.

**Exceptions:**

1. Foyers, lobbies or reception rooms constructed as required for *corridors* shall not be construed as intervening rooms.

[W] 2. In Group R-2 boarding homes and residential treatment facilities licensed by Washington state, seating areas shall be allowed to be open to the corridor provided:

2.1 The seating area is constructed as required for the corridor;

2.2 The floor is separated into at least two compartments complying with Section 407.4;

2.3 Each individual seating area does not exceed 150 square feet (13.9 m<sup>2</sup>), excluding the corridor width;

2.4 The combined total space of seating areas per compartment does not exceed 300 square feet, excluding the corridor width;

2.5 Combustible furnishings located within the seating area shall be in accordance with

*International Fire Code* Section 805; and

2.6 Emergency means of egress lighting is provided as required by Section 1006 to illuminate the area.

**SECTION 1019**

**EGRESS BALCONIES**

\*\*\*

**1019.2 Wall separation.** Exterior egress balconies shall be separated from the interior of the building by walls and opening protectives as required for *corridors*.

**Exceptions:**

1. Separation is not required where the exterior egress balcony is served by at least two *stairs* and a dead-end travel condition does not require travel past an unprotected opening to reach a *stair*.
2. Separation is not required in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

\*\*\*

## SECTION 1020

### EXITS

\*\*\*

**1020.2 Exterior exit doors.** Buildings or structures used for human occupancy shall have at least one exterior door that meets the requirements of Section 1008.1.1, Section 1008.1.2 and Section 1008.1.3.

**1020.2.1 Detailed requirements.** Exterior *exit* doors shall comply with the applicable requirements of Section 1008.1.

**1020.2.2 Arrangement.** Exterior *exit* doors shall lead directly to the *exit discharge* or the *public way*.

## SECTION 1021

### NUMBER OF EXITS AND CONTINUITY

**1021.1 Exits from stories.** All spaces within each *story* shall have access to the minimum number of ~~((approved independent))~~ *exits* as specified in Table 1021.1 based on the *occupant load* of the *story*. For the purposes of this chapter, occupied roofs shall be provided with *exits* as required for stories.

#### **Exceptions:**

1. As modified by Section 403.5.2.
2. As modified by Section 1021.2.
3. *Exit access stairways* and *ramps* that comply with Exception 3 or 4 of Section 1016.1 shall be permitted to provide the minimum number of *approved independent exits* required by Table 1021.1 on each *story*.
4. In Group R-2 and R-3 occupancies, one *means of egress* is permitted within and from individual dwelling units with a maximum *occupant load* of 20 where the dwelling unit is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Within a *story*, rooms and spaces complying with Section 1015.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit*.

**1021.1.1 Exits maintained.** The required number of *exits* from any *story*, including basements, shall be maintained until arrival at grade or the *public way*.



**1021.1.2 Parking structures.** Parking structures shall not have less than two *exits* from each parking tier, except that only one *exit* is required where vehicles are mechanically parked. Vehicle ramps shall not be considered as required *exits* unless pedestrian facilities are provided.

**1021.1.3 Helistops.** The *means of egress* from helistops shall comply with the provisions of this chapter, provided that landing areas located on buildings or structures shall have two or more *exits*. For landing platforms or roof areas less than 60 feet (18 288 mm) long, or less than 2,000 square feet (186 m2) in area, the second *means of egress* is permitted to be a fire escape, *alternating tread device* or ladder leading to the floor below.

**TABLE 1021.1**

**MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD**

<b>OCCUPANT LOAD</b> <b>(persons per story)</b>	<b>MINIMUM NUMBER OF</b> <b>EXITS</b> <b>(per story)</b>
--	--

1-500

2

501-1,000

3

More than 1,000

4

**1021.2 Single exits.** (~~Only one exit shall be required from Group R-3 occupancy buildings or from stories of other buildings as indicated in Table 1021.2.~~) Occupancies shall be permitted to have a single *exit* in buildings otherwise required to have more than one *exit* if the areas served by the single *exit* do not exceed the limitations of Table 1021.2 or Section 1021.2.1. (~~Mixed~~

occupancies shall be permitted to be served by single exits provided each individual occupancy complies with the applicable requirements of Table 1021.2 for that occupancy. Where applicable, cumulative occupant loads from adjacent occupancies shall be considered in accordance with the provisions of Section 1004.1.)) Basements with a single exit shall not be located more than one story below grade plane.

Mixed occupancies shall be permitted to be served by single exits provided each individual occupancy complies with the applicable requirements of Table 1021.2 for that occupancy. Where occupants from accessory spaces egress through a primary space, the occupant load of the primary space shall be calculated in accordance with Section 1004.1. In each story of a mixed occupancy building, the maximum number of occupants served by a single exit shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants for each occupancy shall not exceed one.

**1021.2.1 Single exits allowed.** Only one exit is required from the following:

1. Group R-3 occupancy buildings are permitted to have one exit.
2. Occupied roofs with an occupant load of ten or less are permitted to have one exit.
3. Not more than 5 stories of Group R-2 occupancy are permitted to be served by a single exit under the following conditions:
  - 3.1 The building has not more than six stories above grade plane.
  - 3.2 The building does not contain a boarding house.
  - 3.3 There shall be no more than four dwelling units on any floor.

1 3.4 The building shall be of not less than one-hour fire-resistive construction and shall also be  
2 equipped throughout with an automatic sprinkler system in accordance with Section  
3 903.3.1.1. Residential-type sprinkler heads shall be used in all habitable spaces in each  
4 dwelling unit.

5 3.5 There shall be no more than two single exit stairway conditions on the same property.

6 3.6 An exterior stairway or exit enclosure shall be provided. The exit enclosure, including any  
7 related exit passageway, shall be pressurized in accordance with Section 909.21. Doors in  
8 the exit enclosure shall swing into the exit enclosure regardless of the occupant load served,  
9 provided that doors from the exit enclosure to the building exterior are permitted to swing  
10 in the direction of exit travel.

11 3.7 A corridor shall separate each dwelling unit entry/exit door from the door to an exit  
12 enclosure, including any related exit passageway, on each floor. Dwelling unit doors shall  
13 not open directly into an enclosed stairway. Dwelling unit doors are permitted to open  
14 directly into an exterior stairway.

15 3.8 There shall be no more than 20 feet (6096 mm) of travel to the exit stairway from the  
16 entry/exit door of any dwelling unit.

17 3.9 Travel distance measured in accordance with Section 1016.1 shall not exceed 125 feet.

18 3.10 The exit shall not terminate in an exit court where the court depth exceeds the court  
19 width unless it is possible to exit in either direction to the public way.

20 3.11 Elevators shall be pressurized in accordance with Section 708.14.2 or shall open into  
21 elevator lobbies. Elevator lobbies shall be separated from the remainder of the building and  
22

from the exit stairway with fire partitions. Doors shall be automatic closing actuated by smoke detector. Where approved by the building official, natural ventilation is permitted to be substituted for pressurization where the ventilation would prevent the accumulation of smoke or toxic gases.

3.12 Other occupancies are permitted in the same building provided they comply with all the requirements of this code. Other occupancies shall not communicate with the Group R occupancy portion of the building or with the single-exit stairway.

**Exception:** Parking garages accessory to the Group R occupancy are permitted to communicate with the exit stairway.

3.13 The exit serving the Group R occupancy shall not discharge through any other occupancy, including an accessory parking garage.

3.14 There shall be no openings within 10 feet (3048 mm) of unprotected openings into the stairway other than required exit doors having a one-hour fire-resistance rating.

**TABLE 1021.2**

**STORIES WITH ONE EXIT**

<b>STORY</b>	<b>OCCUPANCY</b>	<b>MAXIMUM OCCUPANTS (OR DWELLING UNITS) PER FLOOR AND TRAVEL DISTANCE</b>
First story or basement	A, B <sup>d</sup> , E <sup>e</sup> , F <sup>d</sup> , M, U, S <sup>d</sup>	49 occupants and 75 feet travel distance
	H-2, H-3	3 occupants and 25 feet travel distance
	H-4, H-5, I, R	10 occupants and 75 feet travel distance

	S <sup>a</sup>	29 occupants and 100 feet travel distance
	B <sup>b</sup> , F, M, Sa	29 occupants and 75 feet travel distance
Second story	R-2	4 dwelling units and 50 feet travel distance
Third story	R-2 <sup>c</sup>	4 dwelling units and 50 feet travel distance

For SI: 1 foot = 304.8 mm.

a. For the required number of exits for parking structures, see Section 1021.1.2.

b. For the required number of exits for air traffic control towers, see Section 412.3.

c. Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1029.

d. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall have a maximum travel distance of 100 feet.

e. Day care occupancies shall have a maximum occupant load of 10.

\*\*\*

## SECTION 1022

### EXIT ENCLOSURES

**1022.1 Enclosures required.** *Interior exit stairways* and *interior exit ramps* shall be enclosed with *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies*

constructed in accordance with Section 712, or both. *Exit enclosures* shall have a *fire-resistance rating* of not less than 2 hours where connecting more than four stories (~~((or more))~~) and not less than 1 hour where connecting (~~((less than))~~) four stories and less. The number of stories connected by the *exit enclosure* shall include any basements but not any *mezzanines*. *Exit enclosures* shall have a *fire-resistance rating* not less than the floor assembly penetrated, but need not exceed 2 hours. *Exit enclosures* shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an *exit passageway* conforming to the requirements of Section 1023, except as permitted in Section 1027.1. An *exit enclosure* shall not be used for any purpose other than *means of egress, circulation and access*.

**Exceptions:**

1. In all occupancies, other than Group H and I occupancies, a *stairway* is not required to be enclosed when the *stairway* serves an *occupant load* of less than 10 and the *stairway* complies with either Item 1.1 or 1.2. In all cases, the maximum number of connecting open stories shall not exceed two.

1.1. The *stairway* is open to not more than one *story* above its *level of exit discharge*; or

1.2. The *stairway* is open to not more than one *story* below its *level of exit discharge*.

2. *Exits* in buildings of Group A-5 where all portions of the *means of egress* are essentially open to the outside need not be enclosed.

3. *Stairways* serving and contained within a single residential dwelling unit or sleeping unit in Group R-1, R-2 or R-3 occupancies are not required to be enclosed.

1 4. *Stairways* in open parking structures that serve only the parking structure are not required to be  
2 enclosed.

3 5. *Stairways* in Group I-3 occupancies, as provided for in Section 408.3.8, are not required to be  
4 enclosed.

5 6. *Means of egress stairways* as required by Sections 410.5.3 and 1015.6.1 are not required to be  
6 enclosed.

7 7. *Means of egress stairways* from balconies, galleries or press boxes as provided for in Section  
8 1028.5.1 are not required to be enclosed.

9 **1022.2 Termination.** *Exit enclosures* shall terminate at an *exit discharge* or a *public way*.

10 **Exception:** An *exit enclosure* shall be permitted to terminate at an *exit passageway* complying  
11 with Section 1023, provided the *exit passageway* terminates at an *exit discharge* or a *public way*.

12 **1022.2.1 Extension.** Where an *exit enclosure* is extended to an *exit discharge* or a *public way* by  
13 an *exit passageway*, the *exit enclosure* shall be separated from the *exit passageway* by a *fire*  
14 *barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in  
15 accordance with Section 712, or both. The *fire-resistance rating* shall be at least equal to that  
16 required for the *exit enclosure*. A *fire door assembly* complying with Section 715.4 shall be  
17 installed in the *fire barrier* to provide a *means of egress* from the *exit enclosure* to the *exit*  
18 *passageway*. Openings in the *fire barrier* other than the *fire door assembly* are prohibited.

19 Penetrations of the *fire barrier* are prohibited.

20 **Exceptions:**

21 1. Penetrations of the *fire barrier* in accordance with Section 1022.4 shall be permitted.

2. A fire barrier and fire door assembly are not required to separate an exit passageway from a pressurized stairway.

**1022.3 Openings ((and penetrations)).** *Exit enclosure* opening protectives shall be in accordance with the requirements of Section 715.

Openings in *exit enclosures* other than unprotected exterior openings shall be limited to those necessary for *exit access* to the enclosure from normally occupied spaces and for egress from the enclosure.

Elevators shall not open into an *exit enclosure*.

**Interpretation I1022.3:** Accessory rooms such as restrooms, storage closets, laundry rooms, electrical, communication closets and similar spaces shall not open into an exit enclosure.

**1022.4 Penetrations.** Penetrations into and openings through an *exit enclosure* are prohibited except for the following:

1. required *exit* doors,
2. equipment and ductwork necessary for independent ventilation or pressurization,
3. sprinkler piping, standpipes,
4. electrical raceway for fire department communication systems and sprinkler monitoring terminating at a steel box not exceeding 16 square inches (0.010 m<sup>2</sup>).
5. electrical raceway serving the *exit enclosure* and terminating at a steel box not exceeding 16 square inches (0.010 m<sup>2</sup>)
6. piping used exclusively for the drainage of rainfall runoff from roof areas, provided the roof is not used for a helistop or heliport.



7. Unfired unit heaters required for freeze protection of fire protection equipment are permitted to penetrate one membrane; the conduit serving the heater is permitted to penetrate both membranes.

8. Equipment necessary for electrically-controlled stairway door locks and security cameras are permitted to penetrate one membrane; the conduit serving the equipment is permitted to penetrate both membranes.

Such penetrations shall be protected in accordance with Section 713. There shall be no penetrations or communication openings, whether protected or not, between adjacent *exit enclosures*.

**Interpretation I1022.4:** Ducts passing through exit enclosures shall be separated from the enclosure by construction having a fire-resistance rating at least equal to the exit enclosure walls. At least one side of the duct enclosure shall abut the exit enclosure.

\*\*\*

**1022.8 Floor identification signs.** A sign shall be provided at each floor landing in *exit enclosures* connecting more than three stories designating the floor level, the terminus of the top and bottom of the *exit enclosure* and the identification of the *stair* or *ramp*. The signage shall also state the *story* of, and the direction to, the *exit discharge*, ~~((and the availability of))~~ whether there is roof access from the enclosure for the fire department, and whether the roof access is accessed by roof hatch. The sign shall be located 5 feet (1524 mm) above the floor landing in a position that is readily visible when the doors are in the open and closed positions. Floor level identification signs in tactile characters complying with ICC A117.1 shall be located at each floor

level landing adjacent to the door leading from the enclosure into the corridor to identify the floor level.

**1022.8.1 Signage requirements.** *Stairway* identification signs shall comply with all of the following requirements:

1. The signs shall be a minimum size of 18 inches (457 mm) by 12 inches (305 mm).
2. The letters designating the identification of the stair enclosure shall be a minimum of 1 1/2 inches (38 mm) in height.
3. The number designating the floor level shall be a minimum of 5 inches (127 mm) in height and located in the center of the sign.
4. All other lettering and numbers shall be a minimum of 1 inch (25 mm) in height.
5. Characters and their background shall have a nonglare finish. Characters shall contrast with their background, with either light characters on a dark background or dark characters on a light background.
6. When signs required by Section 1022.8 are installed in interior *exit enclosures* of buildings subject to Section 1024, the signs shall be made of the same materials as required by Section 1024.4.

**1022.9 ~~((Smokeproof enclosures and pressurized stairways. ((In buildings))~~** Pressurized stairways. ~~((In buildings))~~ Where required by Sections 403.5.4 or 405.7.2, ~~((to comply with Section 403 or 405, each of the))~~ *exit enclosures* ~~((serving a story with a floor surface located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access or more than 30 feet (9144 mm) below the~~

1 ~~finished floor of a level of exit discharge serving such stories~~) shall be ~~((smokeproof enclosure~~  
2 ~~or))~~ pressurized *stairways* in accordance with Section 909.20.

3 **1022.9.1 Termination and extension.** A ~~((smokeproof enclosure or))~~ pressurized *stairway* shall  
4 terminate at an *exit discharge* or a *public way*. The ~~((smokeproof enclosure or))~~-pressurized  
5 *stairway* shall be permitted to be extended by an *exit passageway* in accordance with Section  
6 1022.2. The *exit passageway* shall be without openings other than ~~((the fire door assembly~~  
7 ~~required by Section 1022.2 and))~~ those necessary for egress from the *exit passageway*. The *exit*  
8 *passageway* shall be separated from the remainder of the building by 2-hour *fire barriers*  
9 constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance  
10 with Section 712, or both. The exit passageway shall be protected and pressurized in the same  
11 manner as the pressurized stairway.

12  
13  
14 **Exception((s)):**

15 ~~((1. Openings in the exit passageway serving a smokeproof enclosure are permitted where the~~  
16 ~~exit passageway is protected and pressurized in the same manner as the smokeproof enclosure,~~  
17 ~~and openings are protected as required for access from other floors.~~

18  
19 ~~2. Openings in the exit passageway serving a pressurized stairway are permitted where the exit~~  
20 ~~passageway is protected and pressurized in the same manner as the pressurized stairway.~~

21 ~~3 The fire barrier separating the smokeproof enclosure or pressurized stairway from the exit~~  
22 ~~passageway is not required, provided the exit passageway is protected and pressurized in the~~  
23 ~~same manner as the smokeproof enclosure or pressurized stairway.~~

4)) A (~~smokeproof enclosure or~~) pressurized *stairway* shall be permitted to egress through areas on the level of discharge or vestibules as permitted by Section 1027.

~~((1022.9.2 Enclosure access. Access to the stairway within a smokeproof enclosure shall be by way of a vestibule or an open exterior balcony.~~

~~**Exception:** Access is not required by way of a vestibule or exterior balcony for *stairways* using the pressurization alternative complying with Section 909.20.5.))~~

**1022.10 Equipment in exit enclosures.** Equipment is prohibited in exit enclosures except for equipment necessary for independent pressurization, lighting of the exit enclosure, sprinkler piping, standpipes, electrical equipment for fire department communication and sprinkler monitoring, and unit heaters required to protect fire protection equipment from freezing.

## SECTION 1023

### EXIT PASSAGEWAYS

**1023.1 Exit passageway.** *Exit passageways* serving as an *exit* component in a *means of egress* system shall comply with the requirements of this section. An *exit passageway* shall not be used for any purpose other than as a *means of egress, circulation and access*.

\*\*\*

**1023.5 Openings and penetrations.** *Exit passageway* opening protectives shall be in accordance with the requirements of Section 715.

Except as permitted in Section 402.4.6, openings in *exit passageways* other than exterior openings shall be limited to those necessary for *exit access* to the *exit passageway* from normally occupied spaces and for egress from the *exit passageway*.

Where an *exit enclosure* is extended to an *exit discharge* or a *public way* by an *exit passageway*, the *exit passageway* shall also comply with Section 1022.2.1.

Elevators shall not open into an *exit passageway*.

**Interpretation I1023.5:** Accessory rooms such as restrooms, storage closets, laundry rooms, electrical, communication closets and similar spaces shall not open into exit passageways.

**Code Alternate CA1023.5:** An elevator is permitted to open into an exit passageway when the following conditions are met:

1. A lobby shall separate the elevator from the exit passageway. This is allowed at only one location in the building. The lobby is required whether the elevator hoistway is pressurized or not.
2. The separation shall be constructed as a fire barrier having a fire-resistive rating and opening protectives as for the exit passageway. The door between the lobby and the exit passageway shall also comply with Section 715.4.3. The door shall have listed gaskets installed at head, jambs and meeting edges. This only applies to the walls common with the exit passageway.
3. The lobby shall have a minimum depth of 36 inches. (Note that areas of refuge may require a larger dimension).
4. An elevator lobby constructed as a smoke partition shall be provided at every floor below the level of the exit passageway served by the elevator. Hoistway pressurization is permitted to be used in lieu of the lobbies on floors below the level of the exit passageway.
5. A door as required by Section 1022.2.1 between an exit enclosure and the exit passageway shall be provided.

6. An automatic sprinkler system in accordance with Section 903.3.1.1 shall be provided throughout the floor on which the exit passageway is located.  
This alternate does not apply to vertical exit enclosures.

**1023.6 Penetrations.** Penetrations into and openings through an *exit passageway* are prohibited except for required *exit* doors, equipment and ductwork necessary for independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the *exit passageway* and terminating at a steel box not exceeding 16 square inches (0.010m<sup>2</sup>). Such penetrations shall be protected in accordance with Section 713. There shall be no penetrations or communicating openings, whether protected or not, between adjacent *exit passageways*.

**Exception:** Unfired unit heaters allowed by Section 1022.10 to be installed in exit enclosures are permitted to penetrate one membrane. The conduit serving the heater is permitted to penetrate both membranes.

\*\*\*

## SECTION 1026

### EXTERIOR EXIT RAMPS AND STAIRWAYS

\*\*\*

**1026.3 Open side.** *Exterior exit ramps and stairways* serving as an element of a required *means of egress* shall be at least 50 percent open on at least one side. An open side shall have a minimum of ~~((35))~~ 28 square feet ~~((3.3))~~ 2.6 m<sup>2</sup> of aggregate open area adjacent to each floor level. ~~((and the level of each intermediate landing. The required open area shall be located not~~

1 ~~less than 42 inches (1067 mm) above the adjacent floor or landing level.))~~ The open area shall be  
2 distributed to prevent accumulation of smoke or toxic gases.

3 \*\*\*

## 4 SECTION 1027

### 5 EXIT DISCHARGE

6  
7 **1027.1 General.** *Exits* shall discharge directly to the exterior of the building. The *exit discharge*  
8 shall be at grade or shall provide direct access to grade. The *exit discharge* shall not reenter a  
9 building except into an exit or as otherwise approved by the building official. The combined use  
10 of Exceptions 1 and 2 below shall not exceed 50 percent of the number and capacity of the  
11 required *exits*.  
12

#### 13 Exceptions:

14 1. A maximum of 50 percent of the number and capacity of the *exit enclosures* is permitted to  
15 egress through areas on the level of discharge provided all of the following are met:

16 1.1. Such *exit enclosures* egress to a free and unobstructed path of travel to an exterior *exit* door  
17 and such *exit* is readily visible and identifiable from the point of termination of the *exit* enclosure.  
18

19 1.2. The entire area of the *level of exit discharge* is separated from areas below by construction  
20 conforming to the *fire-resistance rating* for the *exit enclosure*.  
21

22 1.3. The egress path from the *exit enclosure* on the *level of exit discharge* is protected throughout  
23 by an *approved automatic sprinkler system*. All portions of the *level of exit discharge* with access  
24 to the egress path shall either be protected throughout with an *automatic sprinkler system*  
25  
26  
27

installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of *exits*.

2. A maximum of 50 percent of the number and capacity of the *exit enclosures* is permitted to egress through a vestibule provided all of the following are met:

2.1. The entire area of the vestibule is separated from areas below by construction conforming to the *fire-resistance rating* for the *exit enclosure*.

2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9144 mm).

2.3. The area is separated from the remainder of the *level of exit discharge* by construction providing protection at least the equivalent of *approved* wired glass in steel frames.

2.4. The area is used only for *means of egress* and *exits* directly to the outside.

3. *Stairways* in *open parking garages* complying with Section 1022.1, Exception 4, are permitted to egress through the *open parking garage* at their *levels of exit discharge*.

4. *Horizontal exits* complying with Section 1025 shall not be required to discharge directly to the exterior of the building.

\*\*\*

**1027.5 Egress courts.** *Egress courts* serving as a portion of the *exit discharge* in the *means of egress* system shall comply with the requirements of Section 1027.

**1027.5.1 Width.** The width of *egress courts* shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm), except as specified herein. *Egress*



1 *courts* serving Group R-3 and U occupancies shall not be less than 36 inches (914 mm) in width.

2 The required width of *egress courts* shall be unobstructed to a height of 7 feet (2134 mm).

3 **Exception:** Doors complying with Section 1005.2.

4       Where an *egress court* exceeds the minimum required width and the width of such *egress*  
5 *court* is then reduced along the path of *exit* travel, the reduction in width shall be gradual. The  
6 transition in width shall be affected by a guard not less than 36 inches (914 mm) in height and  
7 shall not create an angle of more than 30 degrees (0.52 rad) with respect to the axis of the *egress*  
8 *court* along the path of egress travel. In no case shall the width of the *egress court* be less than  
9 the required minimum.  
10

11 **1027.5.2 Construction and openings.** Where an *egress court* serving a building or portion  
12 thereof is less than 10 feet (3048 mm) in width, the *egress court* walls shall have not less than 1-  
13 hour *fire-resistance-rated* construction for a distance of 10 feet (3048 mm) above the floor of the  
14 *court*. Openings within such walls shall be protected by opening protectives having a *fire*  
15 *protection rating* of not less than ¾ hour.  
16

17 **Exceptions:**

18 1. *Egress courts* serving an *occupant load* of less than 10.

19 2. *Egress courts* serving Group R-3.

20 3. In buildings other than those which have a single means of egress under Section 1021.2.1 item  
21 3, opening protection need not be provided where it is possible to exit in two directions from the  
22 court.  
23

24 \*\*\*  
25  
26

## SECTION 1028

### ASSEMBLY

\*\*\*

**1028.13 Handrails.** Ramped *aisles* having a slope exceeding one unit vertical in 15 units horizontal (6.7-percent slope) and *aisle stairs* shall be provided with *handrails* located either at the side or within the *aisle* width.

#### Exceptions:

1. *Handrails* are not required for ramped *aisles* having a gradient no greater than one unit vertical in eight units horizontal (12.5-percent slope) and seating on both sides.
2. *Handrails* are not required if, at the side of the *aisle*, there is a *guard* that complies with the graspability requirements of *handrails*.
3. *Handrail* extensions are not required at the top and bottom of *aisle stairs* and *aisle ramp* runs to *permit* crossovers within the *aisles*.

**1028.13.1 Discontinuous handrails.** Where there is seating on both sides of the *aisle*, the *handrails* shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the *aisle* to the other. These gaps or breaks shall have a clear width of at least 22 inches (559 mm) and not greater than 36 inches (914 mm), measured horizontally, and the *handrail* shall have rounded terminations or bends.

~~((1028.13.2 Intermediate handrails. Where handrails are provided in the middle of aisle stairs, there shall be an additional intermediate handrail located approximately 12 inches (305 mm) below the main handrail.))~~

\*\*\*

Section 12. The following sections of Chapter 11 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 11

### ACCESSIBILITY

#### SECTION 1101

##### GENERAL

**1101.1 Scope.** The provisions of this chapter shall control the design and construction of facilities for accessibility to physically disabled persons.

**1101.2 Design.** Buildings and facilities shall be designed and constructed to be accessible in accordance with this code and ICC A117.1, except those portions of ICC A117.1 amended by this section.

**1101.2.1 (ICC A117.1 Section 403) Landings for walking surfaces.** The maximum rise for any run is 30 inches (762 mm). Landings shall be provided at the top and bottom of any run. Landings shall be level and have a minimum dimension measured in the direction of travel of not less than 60 inches (1524 mm).

**1101.2.2 (ICC A117.1 Section 403.5) Clear width of accessible route.** Clear width of an accessible route shall comply with ICC A117.1 Table 403.5. For exterior routes of travel, the minimum clear width is 44 inches (1118 mm).

**1101.2.3 (ICC A117.1 Section 404.2.8) Door-opening force.** Fire doors shall have the minimum opening force allowable by the building official. The force for pushing or pulling open doors other than fire doors shall be as follows:

1. Interior hinged door: 5.0 pounds (22.2 N) maximum
2. Interior sliding or folding doors: 5.0 pounds (22.2 N) maximum
3. Exterior hinged, sliding or folding door: 10 pounds (44.5 N)

**Exception:** Interior or exterior automatic doors complying with Section 404.3 of ICC A117.1. These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.

**1101.2.4 (ICC A117.1 Section 407.4.6.2.2) Arrangement of elevator car buttons.** This section is not adopted.

**1101.2.5 (ICC A117.1 Sections 603.4) Coat hooks and shelves.** Coat hooks shall be located within one of the reach ranges specified in Section 308. Shelves shall be installed so the top of the shelf is 40 inches (1016 mm) minimum and 42 inches (1067 mm) maximum above the floor.

**1101.2.6 (ICC A117.1 604.11) Coat hooks and shelves.** Coat hooks provided within toilet compartments shall be located within one of the reach ranges specified in Section 308. Shelves shall be installed so the top of the shelf is 40 inches (1016 mm) minimum and 42 inches (1067 mm) maximum above the floor.

**1101.2.7 (ICC A117.1 606.7) Operable parts.** Operable parts on drying equipment, towel or cleansing product dispensers, and disposal fixtures shall comply with Table 606.7, except the maximum reach height shall be 40 inches (1016 mm) for reach depths less than 6 inches (152 mm).

**1101.2.8 (ICC A117.1 Section 604.6) Flush controls.** Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with Section 309, except the maximum height above the floor shall be 44 inches (1118 mm). Flush controls shall be located on the open side of the water closet.

**Exception:** In ambulatory accessible compartments complying with Section 604.9, flush controls are permitted to be located on either side of the water closet.

**1101.2.9 (ICC A117.1 Section 703.6.3.1) International Symbol of Accessibility.** Where the International Symbol of Accessibility is required, it shall be proportioned complying with ICC A117.1 Figure 703.6.3.1. All interior and exterior signs depicting the International Symbol of Accessibility shall be white on a blue background.

**1101.2.10 (ICC A117.1 Section 404.3.5) Control switches.** Manually operated control switches shall comply with Section 309, except they shall be placed 32 inches (813 mm) minimum and 40 inches (1016 mm) maximum above the floor. The clear floor space adjacent to the control switch shall be located beyond the arc of the door swing and centered on the control switch.

## SECTION 1102

### DEFINITIONS

**1102.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in the code, have the meanings shown herein:

**ACCESSIBLE.** A site, building, facility or portion thereof that complies with this chapter.

**ACCESSIBLE ROUTE.** A continuous, unobstructed path that complies with this chapter.

**ACCESSIBLE UNIT.** A dwelling unit or sleeping unit that complies with this code and the provisions for Accessible units in ICC A117.1.

**CIRCULATION PATH.** An exterior or interior way of passage from one place to another for pedestrians.

**CLOSED-CIRCUIT TELEPHONE.** A telephone with a dedicated line such as a house phone, courtesy phone or phone that must be used to gain entrance to a facility.

**COMMON USE.** Interior or exterior circulation paths, rooms, spaces or elements that are not for public use and are made available for the shared use of two or more people.

**DETECTABLE WARNING.** A standardized surface feature built in or applied to walking surfaces or other elements to warn visually impaired persons of hazards on a circulation path.

**DWELLING UNIT OR SLEEPING UNIT, MULTISTORY.** See definition for “Multistory unit.”

**DWELLING UNIT OR SLEEPING UNIT, TYPE A.** See definition for “Type A unit.”

**DWELLING UNIT OR SLEEPING UNIT, TYPE B.** See definition for “Type B unit.”

**EMPLOYEE WORK AREA.** All or any portion of a space used only by employees and only for work. Corridors, toilet rooms, kitchenettes and break rooms are not employee work areas.

**FACILITY.** All or any portion of buildings, structures, site improvements, elements and pedestrian or vehicular routes located on a site.

**INTENDED TO BE OCCUPIED AS A RESIDENCE.** This refers to a dwelling unit or sleeping unit that can or will be used all or part of the time as the occupant's place of abode.

**MAILBOXES.** Receptacles for the receipt of documents, packages or other deliverable matter.

Mailboxes include, but are not limited to, post office boxes and receptacles provided by commercial mail-receiving agencies, apartment houses and schools.

**MULTILEVEL ASSEMBLY SEATING.** Seating that is arranged in distinct levels where each level is comprised of either multiple rows, or a single row of box seats accessed from a separate level.

**MULTISTORY UNIT.** A dwelling unit or sleeping unit with habitable space located on more than one story.

**PUBLIC ENTRANCE.** An entrance that is not a service entrance or a restricted entrance.

**PUBLIC-USE AREAS.** Interior or exterior rooms or spaces that are made available to the general public.

**RESTRICTED ENTRANCE.** An entrance that is made available for common use on a controlled basis, but not public use, and that is not a service entrance.

**SELF-SERVICE STORAGE FACILITY.** Real property designed and used for the purpose of renting or leasing individual storage spaces to customers for the purpose of storing and removing personal property on a self-service basis.

**SERVICE ENTRANCE.** An entrance intended primarily for delivery of goods or services.

**SITE.** A parcel of land bounded by a lot line or a designated portion of a public right-of-way.

**TRANSIENT LODGING.** A building, facility or portion thereof, excluding inpatient medical care facilities and long-term care facilities, that contains one or more dwelling units or sleeping units. Examples of transient lodging include, but are not limited to, resorts, group homes, hotels, motels, dormitories, homeless shelters, halfway houses and social service lodging.

**TYPE A UNIT.** A dwelling unit or sleeping unit designed and constructed for accessibility in accordance with this code and the provisions for Type A units in ICC A117.1.

**TYPE B UNIT.** A dwelling unit or sleeping unit designed and constructed for accessibility in accordance with this code and the provisions for Type B units in ICC A117.1, consistent with the design and construction requirements of the federal Fair Housing Act.

**WHEELCHAIR SPACE.** A space for a single wheelchair and its occupant.

## **SECTION 1103**

### **SCOPING REQUIREMENTS**

\*\*\*

**1103.2 General exceptions.** Sites, buildings, structures, facilities, elements and spaces shall be exempt from this chapter to the extent specified in this section.

**1103.2.1 Specific requirements.** Accessibility is not required in buildings and facilities, or portions thereof, to the extent permitted by Sections 1104 through ~~((1110))~~ 1114.

**1103.2.2 Existing buildings.** Existing buildings shall comply with Section 3411.

**1103.2.3 Employee work areas.** Spaces and elements within employee work areas shall only be required to comply with Sections 907.5.2.3.2, 1007 and 1104.3.1 and shall be designed and



constructed so that individuals with disabilities can approach, enter and exit the work area. Work areas, or portions of work areas, other than raised courtroom stations, that are less than 300 square feet (30 m<sup>2</sup>) in area and elevated 7 inches (178 mm) or more above the ground or finish floor where the elevation is essential to the function of the space shall be exempt from all requirements.

**1103.2.4 Detached dwellings.** Detached one- and two-family dwellings and accessory structures, and their associated sites and facilities, are not required to be accessible.

**1103.2.5 Utility buildings.** Occupancies in Group U are exempt from the requirements of this chapter other than the following:

1. In agricultural buildings, access is required to paved work areas and areas open to the general public.

2. Private garages or carports that contain required accessible parking.

**1103.2.6 Construction sites.** Structures, sites and equipment directly associated with the actual processes of construction including, but not limited to, scaffolding, bridging, materials hoists, materials storage or construction trailers are not required to be accessible.

**1103.2.7 Raised areas.** Raised areas used primarily for purposes of security, life safety or fire safety including, but not limited to, observation galleries, prison guard towers, fire towers or lifeguard stands are not required to be accessible or to be served by an accessible route.

**1103.2.8 Limited access spaces.** Nonoccupiable spaces accessed only by ladders, catwalks, crawl spaces, freight elevators or very narrow passageways are not required to be accessible.

1 **1103.2.9 Equipment spaces.** Spaces frequented only by personnel for maintenance, repair or  
2 monitoring of equipment are not required to be accessible. Such spaces include, but are not  
3 limited to, elevator pits, elevator penthouses, mechanical, electrical or communications  
4 equipment rooms, piping or equipment catwalks, water or sewage treatment pump rooms and  
5 stations, electric substations and transformer vaults, and highway and tunnel utility facilities.  
6

7 **1103.2.10 Single-occupant structures.** Single-occupant structures accessed only by  
8 passageways below grade or elevated above grade including, but not limited to, toll booths that  
9 are accessed only by underground tunnels, are not required to be accessible.  
10

11 **1103.2.11 Residential Group R-1.** Buildings of Group R-1 containing not more than five  
12 sleeping units for rent or hire that are also occupied as the residence of the proprietor are not  
13 required to be accessible.

14 **1103.2.12 Day care facilities.** Where a day care facility (Groups A-3, E, I-4 and R-3) is part of a  
15 dwelling unit, only the portion of the structure utilized for the day care facility is required to be  
16 accessible.  
17

18 **1103.2.13 Live/work units.** In live/work units constructed in accordance with Section 419, the  
19 portion of the unit utilized for nonresidential use is required to be accessible. The residential  
20 portion of the live/work unit is required to be evaluated separately in accordance with Sections  
21 1107.6.2 and 1107.7.  
22

23 **1103.2.14 Detention and correctional facilities.** In detention and correctional facilities,  
24 common use areas that are used only by inmates or detainees and security personnel, and that do  
25  
26  
27  
28

not serve holding cells or housing cells required to be accessible, are not required to be accessible or to be served by an accessible route.

**1103.2.15 Walk-in coolers and freezers.** Walk-in coolers and freezers intended for employee use only are not required to be accessible.

## SECTION 1104

### ACCESSIBLE ROUTE

\*\*\*

**1104.7 Raised platforms.** In banquet rooms or spaces where a head table or speaker's lectern is located on a raised platform, an accessible route shall be provided to the platform.

\*\*\*

## SECTION 1106

### PARKING AND PASSENGER LOADING FACILITIES

\*\*\*

**1106.3 ((Hospital outpatient)) Group I-2 outpatient facilities.** ((At least t)) Ten percent, but not less than one, of patient and visitor parking spaces provided to serve Group I-2 ((hospital)) outpatient facilities shall be accessible.

\*\*\*

**1106.6 Location.** Accessible parking spaces shall be located on the shortest accessible route of travel from adjacent parking to an accessible building entrance. In parking facilities that do not serve a particular building, accessible parking spaces shall be located on the shortest route to an accessible pedestrian entrance to the parking facility. Where buildings have multiple accessible

entrances with adjacent parking, accessible parking spaces shall be dispersed and located near the accessible entrances. Wherever practical, the accessible route shall not cross lanes of vehicular traffic. Where crossing traffic lanes is necessary, the route shall be designated and marked as a crosswalk.

**Exceptions:**

1. In multilevel parking structures, van-accessible parking spaces are permitted on one level.
2. Accessible parking spaces shall be permitted to be located in different parking facilities if substantially equivalent or greater accessibility is provided in terms of distance from an accessible entrance or entrances, parking fee and user convenience.

\*\*\*

**SECTION 1107**

**DWELLING UNITS, ~~((AND))~~ SLEEPING UNITS**

**AND TRANSIENT LODGING FACILITIES**

\*\*\*

**1107.6 Group R.** Accessible units, Type A units and Type B units shall be provided in Group R occupancies in accordance with Sections 1107.6.1 through ~~((1107.6.4))~~ 1107.6.3. Accessible and Type A units shall be apportioned among efficiency dwelling units, single bedroom units and multiple bedroom units, in proportion to the numbers of such units in the building.

**1107.6.1 Group R-1.** Accessible units and Type B units shall be provided in Group R-1 occupancies in accordance with Sections 1107.6.1.1 and 1107.6.1.2.

**1107.6.1.1 Accessible units.** In Group R-1 occupancies, Accessible dwelling units and sleeping units shall be provided in accordance with Table 1107.6.1.1. All R-1 units on a site shall be considered to determine the total number of Accessible units. Accessible units shall be dispersed among the various classes of units. Roll-in showers provided in Accessible units shall include a permanently mounted folding shower seat.

**1107.6.1.2 Type B units.** In structures with four or more dwelling or sleeping units intended to be occupied as a residence, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit.

**Exception:** The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

**1107.6.2 Group R-2.** Accessible units, Type A units and Type B units shall be provided in Group R-2 occupancies in accordance with Sections 1107.6.2.1 and 1107.6.2.2.

**1107.6.2.1 Apartment houses, monasteries and convents.** Type A units and Type B units shall be provided in apartment houses, monasteries and convents in accordance with Sections 1107.6.2.1.1 and 1107.6.2.1.2.

**1107.6.2.1.1 Type A units.** In Group R-2 occupancies containing more than ((20)) ten dwelling units or sleeping units, at least ((2)) 5 percent but not less than one of the units shall be a Type A unit. All R-2 units on a site shall be considered to determine the total number of units and the required number of Type A units. Type A units shall be dispersed among the various classes of units.

**Exceptions:**

1. The number of Type A units is permitted to be reduced in accordance with Section 1107.7.

2. Existing structures on a site shall not contribute to the total number of units on a site.

**1107.6.2.1.2 Type B units.** Where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit.

**Exception:** The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

**1107.6.2.2 Group R-2 other than apartment houses, monasteries and convents.** In Group R-2 occupancies, other than apartment houses, monasteries and convents, Accessible units and Type B units shall be provided in accordance with Sections 1107.6.2.2.1 and 1107.6.2.2.2. Accessible units shall be dispersed among the various classes of units.

**1107.6.2.2.1 Accessible units.** Accessible dwelling units and sleeping units shall be provided in accordance with Table 1107.6.1.1.

**1107.6.2.2.2 Type B units.** Where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling unit and every sleeping unit intended to be occupied as a residence shall be a Type B unit.

**Exception:** The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

**1107.6.3 Group R-3.** In Group R-3 occupancies where there are four or more dwelling units or sleeping units intended to be occupied as a residence in a single structure, every dwelling and sleeping unit intended to be occupied as a residence shall be a Type B unit.

**Exception:** The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

~~((1107.6.4 Group R-4. Accessible units and Type B units shall be provided in Group R-4 occupancies in accordance with Sections 1107.6.4.1 and 1107.6.4.2.~~

~~**1107.6.4.1 Accessible units.** At least one of the dwelling or sleeping units shall be an Accessible unit.~~

~~**1107.6.4.2 Type B units.** In structures with four or more dwelling units or sleeping units intended to be occupied as a residence, every dwelling unit and sleeping unit intended to be occupied as a residence shall be a Type B unit.~~

~~**Exception:** The number of Type B units is permitted to be reduced in accordance with Section 1107.7.))~~

\*\*\*

**1107.8 Transient lodging facilities.** Transient lodging facilities shall be provided with accessible features in accordance with Sections 1107.8.1 and 1107.8.2. Group I-3 occupancies shall be provided with accessible features in accordance with Sections 1107.8.2 and 1107.8.3.

**1107.8.1 Accessible beds.** In rooms or spaces having more than 25 beds, 5 percent of the beds shall have a clear floor space complying with ICC A117.1.

**1107.8.1.1 Sleeping areas.** A clear floor space complying with ICC A117.1 shall be provided on both sides of the accessible bed. The clear floor space shall be positioned for parallel approach to the side of the bed.

**Exception:** This requirement shall not apply where a single clear floor space complying with ICC A117.1 positioned for parallel approach is provided between two beds.

**1107.8.2 Communication features.** Communication features complying with ICC A117.1 shall be provided in accordance with Sections 1107.8.2.1 through 1107.8.2.4.

**1107.8.2.1 Transient lodging.** In transient lodging facilities, sleeping units with accessible communication features shall be provided in accordance with Table 1107.8.2.1. Units required to comply with Table 1107.8.2.1 shall be dispersed among the various classes of units.

**1107.8.2.2 Group I-3.** In Group I-3 occupancies at least 2 percent, but no fewer than one of the total number of general holding cells and general housing cells equipped with audible emergency alarm systems and permanently installed telephones within the cell, shall comply with Section 1107.8.2.4.

**1107.8.2.3 Dwelling units and sleeping units.** Where dwelling units and sleeping units are altered or added, the requirements of Section 1107.8.2 shall apply only to the units being altered or added until the number of units with accessible communication features complies with the minimum number required for new construction.

**1107.8.2.4 Notification devices.** Visual notification devices shall be provided to alert room occupants of incoming telephone calls and a door knock or bell. Notification devices shall not be connected to visual alarm signal appliances. Permanently installed telephones shall have volume controls and an electrical outlet complying with ICC A117.1 located within 48 inches (1219 mm) of the telephone to facilitate the use of a TTY.



**1107.8.3 Partitions.** Solid partitions or security glazing that separates visitors from detainees in Group I-3 occupancies shall provide a method to facilitate voice communication. Such methods are permitted to include, but are not limited to, grilles, slats, talk-through baffles, intercoms or telephone handset devices. The method of communication shall be accessible to individuals who use wheelchairs and individuals who have difficulty bending or stooping. Hand-operable communication devices, if provided, shall comply with Section 1111.3.

**TABLE 1107.8.2.1**

**DWELLING OR SLEEPING UNITS WITH ACCESSIBLE COMMUNICATION**

**FEATURES**

<u>TOTAL NUMBER OF DWELLING OR SLEEPING UNITS PROVIDED</u>	<u>MINIMUM REQUIRED NUMBER OF DWELLING OR SLEEPING UNITS WITH ACCESSIBLE COMMUNICATION FEATURES</u>
<u>1</u>	<u>1</u>
<u>2 to 25</u>	<u>2</u>
<u>26 to 50</u>	<u>4</u>
<u>51 to 75</u>	<u>7</u>
<u>76 to 100</u>	<u>9</u>
<u>101 to 150</u>	<u>12</u>
<u>151 to 200</u>	<u>14</u>
<u>201 to 300</u>	<u>17</u>
<u>301 to 400</u>	<u>20</u>
<u>401 to 500</u>	<u>22</u>
<u>501 to 1,000</u>	<u>5% of total</u>
<u>1,001 and over</u>	<u>50 plus 3 for each 100 over 1,000</u>

\*\*\*

**SECTION 1109**

## OTHER FEATURES AND FACILITIES

**1109.1 General.** Accessible building features and facilities shall be provided in accordance with Sections 1109.2 through ~~((1109.14))~~ 1109.19.

**Exception:** Type A units and Type B units shall comply with ICC A117.1.

**1109.2 Toilet and bathing facilities.** Each toilet room and bathing room shall be accessible.

Where a floor level is not required to be connected by an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on the inaccessible floor. At least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible.

### **Exceptions:**

1. In toilet rooms or bathing rooms accessed only through a private office, not for common or public use and intended for use by a single occupant, any of the following alternatives are allowed:

1.1. Doors are permitted to swing into the clear floor space, provided the door swing can be reversed to meet the requirements in ICC A117.1;

1.2. The height requirements for the water closet in ICC A117.1 are not applicable;

1.3. Grab bars are not required to be installed in a toilet room, provided that reinforcement has been installed in the walls and located so as to permit the installation of such grab bars; and

1.4. The requirement for height, knee and toe clearance shall not apply to a lavatory.

2. This section is not applicable to toilet and bathing rooms that serve dwelling units or sleeping units that are not required to be accessible by Section 1107.

3. Where multiple single-user toilet rooms or bathing rooms are clustered at a single location, at least 50 percent but not less than one room for each use at each cluster shall be accessible.

4. Where no more than one urinal is provided in a toilet room or bathing room, the urinal is not required to be accessible.

5. Toilet rooms that are part of critical care or intensive care patient sleeping rooms are not required to be accessible.

**1109.2.1 Family or assisted-use toilet and bathing rooms.** In assembly and mercantile occupancies, an accessible family or assisted-use toilet room shall be provided where an aggregate of six or more male and female water closets is required. In buildings of mixed occupancy, only those water closets required for the assembly or mercantile occupancy shall be used to determine the family or assisted-use toilet room requirement. In recreational facilities where separate-sex bathing rooms are provided, an accessible family or assisted-use bathing room shall be provided. Fixtures located within family or assisted-use toilet and bathing rooms shall be included in determining the number of fixtures provided in an occupancy.

**Exception:** Where each separate-sex bathing room has only one shower or bathtub fixture, a family or assisted-use bathing room is not required.

**1109.2.1.1 Standard.** Family or assisted-use toilet and bathing rooms shall comply with Sections 1109.2.1.2 through 1109.2.1.7 and ICC A117.1.

**1109.2.1.2 Family or assisted-use toilet rooms.** Family or assisted-use toilet rooms shall include only one water closet and only one lavatory. A family or assisted-use bathing room in accordance with Section 1109.2.1.3 shall be considered a family or assisted-use toilet room.

**Exception:** A urinal is permitted to be provided in addition to the water closet in a family or assisted-use toilet room.

**1109.2.1.3 Family or assisted-use bathing rooms.** Family or assisted-use bathing rooms shall include only one shower or bathtub fixture.

Family or assisted-use bathing rooms shall also include one water closet and one lavatory. Where storage facilities are provided for separate-sex bathing rooms, accessible storage facilities shall be provided for family or assisted-use bathing rooms.

**1109.2.1.4 Location.** Family or assisted-use toilet and bathing rooms shall be located on an accessible route. Family or assisted-use toilet rooms shall be located not more than one story above or below separate-sex toilet rooms. The accessible route from any separate-sex toilet room to a family or assisted-use toilet room shall not exceed 500 feet (152 m).

**1109.2.1.5 Prohibited location.** In passenger transportation facilities and airports, the accessible route from separate-sex toilet rooms to a family or assisted-use toilet room shall not pass through security checkpoints.

**1109.2.1.6 Clear floor space.** Where doors swing into a family or assisted-use toilet or bathing room, a clear floor space not less than 30 inches by 48 inches (762 mm by 1219 mm) shall be provided, within the room, beyond the area of the door swing.

**1109.2.1.7 Privacy.** Doors to family or assisted-use toilet and bathing rooms shall be securable from within the room.

**1109.2.2 Water closet compartment.** Where water closet compartments are provided in a toilet room or bathing room, at least one wheelchair-accessible compartment shall be provided. Where

the combined total water closet compartments and urinals provided in a toilet room or bathing room is six or more, at least one ambulatory-accessible water closet compartment shall be provided in addition to the wheelchair-accessible compartment. Wheelchair-accessible and ambulatory-accessible compartments shall comply with ICC A117.1.

**1109.2.3 Portable toilets and bathing rooms.** Where multiple single-user portable toilet or bathing units are clustered at a single location, at least 5 percent, but not less than one toilet unit or bathing unit at each cluster, shall comply with ICC A117.1. Signs containing the International Symbol of Accessibility and complying with ICC A117.1 shall identify accessible portable toilets and bathing units.

**Exception:** Portable toilet units provided for use exclusively by construction personnel on a construction site.

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**1109.6 Elevators.** Passenger elevators on an accessible route shall be accessible and comply with ~~((Section 3004.3))~~ ICC A117.1. Elevators required to be accessible shall be designed and constructed to comply with Chapter 296-96 of the Washington Administrative Code.

\*\*\*

**1109.9 Detectable warnings.** Passenger transit platform edges bordering a drop-off and not protected by platform screens or guards shall have a detectable warning. Curb ramps shall have detectable warnings.

**Exception:** Detectable warnings are not required at bus stops.

\*\*\*

**1109.12 Controls, operating mechanisms and hardware.** Controls, operating mechanisms and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets, in accessible spaces, along accessible routes or as parts of accessible elements shall be accessible.

**Exceptions:**

1. Operable parts that are intended for use only by service or maintenance personnel shall not be required to be accessible.
2. Electrical or communication receptacles serving a dedicated use shall not be required to be accessible.
3. Where two or more outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one outlet shall not be required to be accessible.
4. Floor electrical receptacles shall not be required to be accessible.
5. HVAC diffusers shall not be required to be accessible.
6. Except for light switches, where redundant controls are provided for a single element, one control in each space shall not be required to be accessible.
7. Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum and 48 inches minimum above the finished floor or ground, provided the self-latching devices are not also self-locking devices, operated by means of a key, electronic opener, or integral combination lock.

**1109.12.1 Operable window.** Where operable windows are provided in rooms that are required to be accessible in accordance with Sections 1107.5.1.1, 1107.5.2.1, 1107.5.3.1, 1107.5.4, 1107.6.1.1, 1107.6.2.1.1, and 1107.6.2.2.1 ((and 1107.6.4.1)), at least one window in each room shall be accessible and each required operable window shall be accessible.

**Exception:** Accessible windows are not required in bathrooms and kitchens.

\*\*\*

**1109.15 Laundry equipment.** Where provided in spaces required to be accessible, washing machines and clothes dryers shall comply with this section.

**1109.15.1 Washing machines.** Where three or fewer washing machines are provided, at least one shall comply with ICC A117.1. Where more than three washing machines are provided, at least two shall comply with ICC A117.1.

**1109.15.2 Clothes dryers.** Where three or fewer clothes dryers are provided, at least one shall comply with ICC A117.1. Where more than three clothes dryers are provided, at least two shall comply with ICC A117.1.

**1109.16 Depositories, vending machines, change machines and similar equipment.** Where provided, at least one of each type of depository, vending machine, change machine and similar equipment shall comply with ICC A117.1.

**Exception:** Drive-up-only depositories are not required to comply with this section.

**1109.17 Mailboxes.** Where mailboxes are provided in an interior location, at least 5 percent, but not less than one, of each type shall comply with ICC A117.1. In residential and institutional

1 facilities, where mailboxes are provided for each dwelling unit or sleeping unit, mailboxes  
2 complying with ICC A117.1 shall be provided for each unit required to be an Accessible unit.

3 **1109.18 Automatic teller machines and fare machines.** Where automatic teller machines or  
4 self-service fare vending, collection or adjustment machines are provided, at least one machine of  
5 each type at each location where such machines are provided shall be accessible. Where bins are  
6 provided for envelopes, wastepaper or other purposes, at least one of each type shall be  
7 accessible.

9 **1109.19 Two-way communication systems.** Where two-way communication systems are  
10 provided to gain admittance to a building or facility or to restricted areas within a building or  
11 facility, the system shall comply with ICC A117.1.

## 13 SECTION 1110

### 14 SIGNAGE

15 **1110.1 Signs.** Required accessible elements shall be identified by the International Symbol of  
16 Accessibility at the following locations:

- 17 1. Accessible parking spaces required by Section 1106.1 except where the total number of  
18 parking spaces provided is four or less.
- 19 2. Accessible passenger loading zones.
- 20 3. Accessible rooms where multiple single-user toilet or bathing rooms are clustered at a single  
21 location.
- 22 4. Accessible entrances where not all entrances are accessible.
- 23
- 24
- 25
- 26
- 27
- 28



5. Accessible check-out aisles where not all aisles are accessible. The sign, where provided, shall be above the check-out aisle in the same location as the check-out aisle number or type of check-out identification.

6. Unisex toilet and bathing rooms.

7. Accessible dressing, fitting and locker rooms where not all such rooms are accessible.

8. Accessible areas of refuge in accordance with Section 1007.9.

9. Exterior areas for assisted rescue in accordance with Section 1007.9.

10. Required accessible portable toilets and bathing facilities.

\*\*\*

**1110.3 Other signs.** Signage indicating special accessibility provisions shall be provided as shown:

1. Each assembly area required to comply with Section 1108.2.7 shall provide a sign notifying patrons of the availability of assistive listening systems.

**Exception:** Where ticket offices or windows are provided, signs are not required at each assembly area provided that signs are displayed at each ticket office or window informing patrons of the availability of assistive listening systems.

2. At each door to an area of refuge, an exterior area for assisted rescue, an egress stairway, exit passageway and exit discharge, signage shall be provided in accordance with Section 1011.3.

3. At areas of refuge, signage shall be provided in accordance with Sections 1007.11.

4. At exterior areas for assisted rescue, signage shall be provided in accordance with Section 1007.11.

5. At two-way communication systems, signage shall be provided in accordance with Section 1007.8.2.

6. Within exit enclosures, signage shall be provided in accordance with Section 1022.8.

7. At bus stops and terminals, signage shall be provided in accordance with Section 1112.4.

8. At fixed facilities and stations, signage shall be provided in accordance with Sections 1113.2.2 through 1113.2.2.3.

9. At airports, terminal information systems shall be provided in accordance with Section 1114.3.

**1110.4 Designations.** Interior and exterior signs identifying permanent rooms and spaces shall be tactile. Where pictograms are provided as designations of interior rooms and spaces, the pictograms shall have tactile text descriptors. Signs required to provide tactile characters and pictograms shall comply with ICC A117.1.

**Exceptions:**

1. Exterior signs that are not located at the door to the space they serve are not required to comply.

2. Building directories, menus, seat and row designations in assembly areas, occupant names, building addresses and company names and logos are not required to comply.

3. Signs in parking facilities are not required to comply.

4. Temporary (seven days or less) signs are not required to comply.

5. In detention and correctional facilities, signs not located in public areas are not required to comply.

**1110.5 Directional and informational signs.** Signs that provide direction to, or information about, permanent interior spaces of the site and facilities shall contain visual characters complying with ICC A117.1.

**Exception:** Building directories, personnel names, company or occupant names and logos, menus and temporary (seven days or less) signs are not required to comply with ICC A117.1.

## **SECTION 1111**

### **TELEPHONES**

**1111.1 General.** Where coin-operated public pay telephones, coinless public pay telephones, public closed-circuit telephones, courtesy phones or other types of public telephones are provided, accessible public telephones shall be provided in accordance with Sections 1111.2 through 1111.5 for each type of public telephone provided. For purposes of this section, a bank of telephones shall be considered two or more adjacent telephones.

**1111.2 Wheelchair-accessible telephones.** Where public telephones are provided, wheelchair-accessible telephones complying with ICC A117.1 shall be provided in accordance with Table 1111.2.

**Exception:** Drive-up-only public telephones are not required to be accessible.

## **TABLE 1111.2**

### **WHEELCHAIR-ACCESSIBLE TELEPHONES**

<u>NUMBER OF TELEPHONES PROVIDED ON A FLOOR, LEVEL OR EXTERIOR SITE</u>	<u>MINIMUM REQUIRED NUMBER OF WHEELCHAIR-ACCESSIBLE TELEPHONES</u>
<u>1 or more single unit</u>	<u>1 per floor, level and exterior site</u>
<u>1 bank</u>	<u>1 per floor, level and exterior site</u>
<u>2 or more banks</u>	<u>1 per bank</u>

**1111.3 Volume controls.** All public telephones provided shall have volume control complying with ICC A117.1.

**1111.4 TTYs.** TTYs complying with ICC A117.1 shall be provided in accordance with Sections 1111.4.1 through 1111.4.9.

**1111.4.1 Bank requirement.** Where four or more public pay telephones are provided at a bank of telephones, at least one public TTY shall be provided at that bank.

**Exception:** TTYs are not required at banks of telephones located within 200 feet (60 960 mm) of, and on the same floor as, a bank containing a public TTY.

**1111.4.2 Floor requirement.** Where four or more public pay telephones are provided on a floor of a privately owned building, at least one public TTY shall be provided on that floor. Where at least one public pay telephone is provided on a floor of a publicly owned building, at least one public TTY shall be provided on that floor.

**1111.4.3 Building requirement.** Where four or more public pay telephones are provided in a privately owned building, at least one public TTY shall be provided in the building. Where at least one public pay telephone is provided in a publicly owned building, at least one public TTY shall be provided in the building.

1 **1111.4.4 Site requirement.** Where four or more public pay telephones are provided on a site, at  
2 least one public TTY shall be provided on the site.

3 **1111.4.5 Rest stops, emergency road stops and service plazas.** Where a public pay telephone  
4 is provided at a public rest stop, emergency road stop or service plaza, at least one public TTY  
5 shall be provided.

6  
7 **1111.4.6 Hospitals.** Where a public pay telephone is provided in or adjacent to a hospital  
8 emergency room, hospital recovery room or hospital waiting room, at least one public TTY shall  
9 be provided at each such location.

10 **1111.4.7 Transportation facilities.** Transportation facilities shall be provided with TTYs in  
11 accordance with Sections 1113.2.5 and 1114.2 in addition to the TTYs required by Sections  
12 1111.4.1 through 1111.4.4.

13  
14 **1111.4.8 Detention and correctional facilities.** In detention and correctional facilities, where a  
15 public pay telephone is provided in a secured area used only by detainees or inmates and security  
16 personnel, then at least one TTY shall be provided in at least one secured area.

17  
18 **1111.4.9 Signs.** Public TTYs shall be identified by the International Symbol of TTY complying  
19 with ICC A117.1. Directional signs indicating the location of the nearest public TTY shall be  
20 provided at banks of public pay telephones not containing a public TTY. Additionally, where  
21 signs provide direction to public pay telephones, they shall also provide direction to public  
22 TTYs. Such signs shall comply with ICC A117.1 and shall include the International Symbol of  
23 TTY.

**1111.5 Shelves for portable TTYs.** Where a bank of telephones in the interior of a building consists of three or more public pay telephones, at least one public pay telephone at the bank shall be provided with a shelf and an electrical outlet in accordance with ICC A117.1.

**Exceptions:**

1. In secured areas of detention and correctional facilities, if shelves and outlets are prohibited for purposes of security or safety shelves and outlets for TTYs are not required to be provided.
2. The shelf and electrical outlet shall not be required at a bank of telephones with a TTY.

**SECTION 1112**

**BUS STOPS**

**1112.1 General.** Bus stops shall comply with Sections 1112.2 through 1112.5.

**1112.2 Bus boarding and alighting areas.** Bus boarding and alighting areas shall comply with Sections 1112.2.1 through 1112.2.4.

**1112.2.1 Surface.** Bus boarding and alighting areas shall have a firm, stable surface.

**1112.2.2 Dimensions.** Bus boarding and alighting areas shall have a clear length of 96 inches (2440 mm) minimum, measured perpendicular to the curb or vehicle roadway edge, and a clear width of 60 inches (1525 mm) minimum, measured parallel to the vehicle roadway.

**1112.2.3 Connection.** Bus boarding and alighting areas shall be connected to streets, sidewalks or pedestrian paths by an accessible route complying with Section 1104.

**1112.2.4 Slope.** Parallel to the roadway, the slope of the bus boarding and alighting area shall be the same as the roadway, to the maximum extent practicable. For water drainage, a maximum slope of 1:48 perpendicular to the roadway is allowed.

**1112.3 Bus shelters.** Where provided, new or replaced bus shelters shall provide a minimum clear floor or ground space complying with ICC A117.1, Section 305, entirely within the shelter. Such shelters shall be connected by an accessible route to the boarding area required by Section 1112.2.

**1112.4 Signs.** New bus route identification signs shall have finish and contrast complying with ICC A117.1. Additionally, to the maximum extent practicable, new bus route identification signs shall provide visual characters complying with ICC A117.1.

**Exception:** Bus schedules, timetables and maps that are posted at the bus stop or bus bay are not required to meet this requirement.

**1112.5 Bus stop siting.** Bus stop sites shall be chosen such that, to the maximum extent practicable, the areas where lifts or ramps are to be deployed comply with Sections 1112.2 and 1112.3.

## **SECTION 1113**

### **TRANSPORTATION FACILITIES AND STATIONS**

**1113.1 General.** Fixed transportation facilities and stations shall comply with the applicable provisions of Section 1113.2.

**1113.2 New construction.** New stations in rapid rail, light rail, commuter rail, intercity rail, high speed rail and other fixed guideway systems shall comply with Sections 1113.2.1 through 1113.2.8.

**1113.2.1 Station entrances.** Where different entrances to a station serve different transportation fixed routes or groups of fixed routes, at least one entrance serving each group or route shall comply with Section 1104 and ICC A117.1.

**1113.2.2 Signs.** Signage in fixed transportation facilities and stations shall comply with Sections 1113.2.2.1 through 1113.2.2.3.

**1113.2.2.1 Tactile signs.** Where signs are provided at entrances to stations identifying the station or the entrance, or both, at least one sign at each entrance shall be tactile. A minimum of one tactile sign identifying the specific station shall be provided on each platform or boarding area. Such signs shall be placed in uniform locations at entrances and on platforms or boarding areas within the transit system to the maximum extent practicable. Tactile signs shall comply with ICC A117.1.

**Exceptions:**

1. Where the station has no defined entrance but signs are provided, the tactile signs shall be placed in a central location.

2. Signs are not required to be tactile where audible signs are remotely transmitted to hand-held receivers, or are user or proximity actuated.

**1113.2.2.2 Identification signs.** Stations covered by this section shall have identification signs containing visual characters complying with ICC A117.1. Signs shall be clearly visible and within the sightlines of a standing or sitting passenger from within the train on both sides when not obstructed by another train.



**1113.2.2.3 Informational signs.** Lists of stations, routes and destinations served by the station which are located on boarding areas, platforms or mezzanines shall provide visual characters complying with ICC A117.1 Signs covered by this provision shall, to the maximum extent practicable, be placed in uniform locations within the transit system.

**1113.2.3 Fare machines.** Self-service fare vending, collection and adjustment machines shall comply with ICC A117.1, Section 707. Where self-service fare vending, collection or adjustment machines are provided for the use of the general public, at least one accessible machine of each type provided shall be provided at each accessible point of entry and exit.

**1113.2.4 Rail-to-platform height.** Station platforms shall be positioned to coordinate with vehicles in accordance with the applicable provisions of 36 CFR, Part 1192. Low-level platforms shall be 8 inches (250 mm) minimum above top of rail.

**Exception:** Where vehicles are boarded from sidewalks or street level, low-level platforms shall be permitted to be less than 8 inches (204 mm).

**1113.2.5 TTYs.** Where a public pay telephone is provided in a transit facility (as defined by the Department of Transportation) at least one public TTY complying with ICC A117.1, Section 704.4, shall be provided in the station. In addition, where one or more public pay telephones serve a particular entrance to a transportation facility, at least one TTY telephone complying with ICC A117.1, Section 704.4, shall be provided to serve that entrance.

**1113.2.6 Track crossings.** Where a circulation path serving boarding platforms crosses tracks, an accessible route complying with ICC A117.1 shall be provided.

**Exception:** Openings for wheel flanges shall be permitted to be 2 1/2 inches (64 mm) maximum.

**1113.2.7 Public address systems.** Where public address systems convey audible information to the public, the same or equivalent information shall be provided in a visual format.

**1113.2.8 Clocks.** Where clocks are provided for use by the general public, the clock face shall be uncluttered so that its elements are clearly visible. Hands, numerals and digits shall contrast with the background either light-on-dark or dark-on-light. Where clocks are mounted overhead, numerals and digits shall comply with ICC A117.1, Section 703.2.

## **SECTION 1114**

### **AIRPORTS**

**1114.1 New construction.** New construction of airports shall comply with Sections 1114.2 through 1114.4.

**1114.2 TTYs.** Where public pay telephones are provided, at least one TTY shall be provided in compliance with ICC A117.1, Section 704.4. Additionally, if four or more public pay telephones are located in a main terminal outside the security areas, a concourse within the security areas or a baggage claim area in a terminal, at least one public TTY complying with ICC A117.1, Section 704.4, shall also be provided in each such location.

**1114.3 Terminal information systems.** Where terminal information systems convey audible information to the public, the same or equivalent information shall be provided in a visual format.

**1114.4 Clocks.** Where clocks are provided for use by the general public, the clock face shall be uncluttered so that its elements are clearly visible. Hands, numerals and digits shall contrast with

1 their background either light-on-dark or dark-on-light. Where clocks are mounted overhead,  
2 numerals and digits shall comply with ICC A117.1, Section 703.2.

3 Section 13. The following sections of Chapter 12 of the International Building Code,  
4 2009 Edition, are amended as follows:

5 **CHAPTER 12**

6 **INTERIOR ENVIRONMENT**

7 \*\*\*

8 **SECTION 1203**

9 **VENTILATION**

10 \*\*\*

11 **1203.2 Attic spaces.** Enclosed *attics* and enclosed rafter spaces formed where ceilings are  
12 applied directly to the underside of roof framing members shall have cross ventilation for each  
13 separate space by ventilating openings protected against the entrance of rain and snow. Blocking  
14 and bridging shall be arranged so as not to interfere with the movement of air. A minimum of 1  
15 inch (25 mm) of airspace shall be provided between the insulation and the roof sheathing. The  
16 net free ventilating area shall not be less than ((~~1/300~~)) 1/150 of the area of the space ventilated,  
17 with 50 percent of the required ventilating area provided by ventilators located in the upper  
18 portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the  
19 balance of the required ventilation provided by eave or cornice vents.

20 **Exceptions:**

1. The minimum required net free ventilating shall be 1/300 of the area of the space ventilated,  
provided a vapor retarder having a transmission rate not exceeding one perm in accordance with  
ASTM E 96 is installed on the warm side of the attic insulation and provided 50 percent of the  
required ventilating area provided by ventilators located in the upper portion of the space to be  
ventilated is at least 3 feet (914 mm) above eave or cornice vents, with the balance of the  
required ventilation provided by eave or cornice vents.

2. Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof  
rafters) shall be permitted if all the following conditions are met:

2.1 The unvented attic space is completely contained within the building thermal envelope.

2.2 No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic  
assembly.

2.3 Where wood shingles or shakes are used, a minimum 1/4 inch (6 mm) vented air space  
separates the shingles or shakes and the roofing underlayment above the structural sheathing.

2.4 Any air-impermeable insulation shall be a vapor retarder, or shall have a vapor retarder  
coating or covering in direct contact with the underside of the insulation.

2.5 Either items a, b, or c below shall be met, depending on the air permeability of the insulation  
directly under the structural roof sheathing.

a. Air-impermeable insulation only. Insulation shall be applied in direct contact to the underside  
of the structural roof sheathing.

b. Air-permeable insulation only. In addition to the air-permeable insulation installed directly  
below the structural sheathing, rigid board or sheet insulation shall be installed directly above the

structural roof sheathing for condensation control. The insulation shall be rigid board or air-impermeable insulation with at least R-10 value.

c. Air-impermeable and air-permeable insulation. The air-impermeable insulation shall be applied in direct contact to the underside of the structural roof sheathing for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation. The insulation shall be rigid board or air-impermeable insulation with at least R-10 value.

**1203.3 Under-floor ventilation.** The space between the bottom of the floor joists and the earth under any building except spaces occupied by basements or cellars shall be provided with ventilation openings through foundation walls or *exterior walls*. Such openings shall be placed so as to provide cross ventilation of the under-floor space.

**1203.3.1 Openings for under-floor ventilation.** The minimum net area of ventilation openings shall not be less than 1 square foot for each 150 square feet (0.67 m<sup>2</sup> for each 100 m<sup>2</sup>) of crawl-space area. Ventilation openings shall be covered for their height and width with any of the following materials, provided that the least dimension of the covering shall not exceed 1/4 inch (6 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grilles or gratings.
4. Extruded load-bearing vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.

6. Corrosion-resistant wire mesh, with the least dimension not exceeding 1/8 inch (3.2 mm).

**1203.3.2 Exceptions.** The following are exceptions to Sections 1203.3 and 1203.3.1:

1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.

2. The total area of ventilation openings is permitted to be reduced to 1/1,500 of the under-floor area where the ground surface is covered with a Class I vapor retarder material and the required openings are placed so as to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.

3. Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m<sup>2</sup>) of crawl space floor area and the ground surface is covered with a Class I vapor retarder.

4. Ventilation openings are not required when the ground surface is covered with a Class I vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with the ~~((International Energy Conservation Code))~~ Washington State Energy Code with Seattle Amendments.

5. For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation shall be deemed as meeting the flood opening requirements of ASCE 24 provided that the ventilation openings are designed and installed in accordance with ASCE 24.

**1203.4 Natural ventilation.** Where provided in other than Group R occupancies, ((Natural)) natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with

ready access so that the openings are readily controllable by the building occupants. Group R occupancies shall comply with the International Mechanical Code.

**1203.4.1 Ventilation area required.** The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

**1203.4.1.1 Adjoining spaces.** Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

**Exception:** Exterior openings required for ventilation shall be permitted to open into a *thermally isolated* sunroom addition or patio cover provided that the openable area between the sunroom addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

**1203.4.1.2 Openings below grade.** Where openings below grade provide required natural ventilation, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

**1203.4.2 Contaminants exhausted.** Contaminant sources in naturally ventilated spaces shall be removed in accordance with the *International Mechanical Code* and the *International Fire Code*.

**1203.4.2.1 Bathrooms.** Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the *International Mechanical Code*.

**1203.4.3 Openings on yards or courts.** Where natural ventilation is to be provided by openings onto yards or courts, such yards or courts shall comply with Section 1206.

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## SECTION 1204

### TEMPERATURE CONTROL

**1204.1 Equipment and systems.** Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining ~~((a minimum))~~ an average indoor temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor ~~((on the design heating day))~~ when the outside temperature is 24°F.

#### Exceptions:

1. Interior spaces where the primary purpose is not associated with human comfort.
- [W] 2. Group R-1 occupancies not more than 500 square feet (139 m<sup>2</sup>).

See the *Washington State Energy Code with Seattle Amendments* and *International Mechanical Code* for additional requirements for heating systems.

#### [W] 1204.2 Use of solid-fuel-burning devices.

**1204.2.1 Definitions.** For the purposes of this section only, the following definitions apply.

**DESIGNATED AREAS.** Those areas designated by a county to be an urban growth area in Chapter 36.70A RCW and those areas designated by the U.S. Environmental Protection Agency as being in nonattainment for particulate matter.



**SUBSTANTIALLY REMODELED.** Any alteration or restoration of a building exceeding 60 percent of the appraised value of such building within a 12-month period. For the purpose of this section, the appraised value is the estimated cost to replace the building and structure in kind, based on current replacement costs.

**1204.2.2 Primary heating source.** Primary heating sources in all new and substantially remodeled buildings in designated areas shall not be dependent upon wood stoves.

**1204.2.3 Solid fuel burning devices.** No used solid fuel burning device shall be installed in new or existing buildings unless such device is United States Environmental Protection Agency certified or a pellet stove either certified or exempt from certification by the United States Environmental Protection Agency.

**Exception:** Antique wood cook stoves and heaters manufactured prior to 1940.

## SECTION 1205

### LIGHTING

\*\*\*

**1205.4 Stairway illumination.** *Stairways within dwelling units and exterior stairways serving a dwelling unit shall have an illumination level on tread runs of not less than 1 foot-candle (11 lux). Stairs in other occupancies shall be governed by Chapter 10.*

**1205.4.1 Controls.** The control for activation of the required *stairway* lighting shall be in accordance with ((NFPA 70)) the Seattle Electrical Code and Washington State Energy Code with Seattle Amendments.

\*\*\*

## SECTION 1206

### YARDS OR COURTS

\*\*\*

**1206.3 Courts.** *Courts* shall not be less than 3 feet (914 mm) in width. *Courts* having windows opening on opposite sides shall not be less than 6 feet (1829 mm) in width. *Courts* shall not be less than 10 feet (3048 mm) in length unless bounded on one end by a *public way* or *yard*. For buildings more than two *stories above grade plane*, the *court* shall be increased 1 foot (305 mm) in width and 2 feet (610 mm) in length for each additional *story*. For buildings exceeding 14 *stories above grade plane*, the required dimensions shall be computed on the basis of 14 *stories above grade plane*.

**1206.3.1 Court access.** Access shall be provided to the bottom of *courts* for cleaning purposes.

**1206.3.2 Air intake.** *Courts* more than two *stories* in height shall be provided with a horizontal air intake at the bottom not less than 10 square feet (0.93 m<sup>2</sup>) in area and leading to the exterior of the building unless abutting a *yard* or *public way*.

**1206.3.3 Court drainage.** The bottom of every *court* shall be properly graded and drained to a public sewer or other approved disposal system complying with the ((~~International~~)) Uniform Plumbing Code.

## SECTION 1207

### SOUND TRANSMISSION

\*\*\*

**1207.2 Air-borne sound.** Walls, partitions and floor/ceiling assemblies separating *dwelling units* from each other or from public or service areas shall have a sound transmission class (STC) of not less than 50 (45 if field tested) for air-borne noise when tested in accordance with ASTM E 90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement shall not apply to *dwelling unit* entrance doors; however, such doors shall be tight fitting to the frame and sill.

**Exception:** Dwelling unit or guest room entrance doors from interior corridors and interconnecting doors between separate units shall have perimeter seals and such door assemblies shall have a sound transmission class (STC) rating of not less than 28.

**1207.2.1 Masonry.** The sound transmission class of concrete masonry and clay masonry assemblies shall be calculated in accordance with TMS 0302 or determined through testing in accordance with ASTM 90.

**1207.3 Structure-borne sound.** Floor/ceiling assemblies between *dwelling units* or between a *dwelling unit* and a public or service area within the structure shall have an impact insulation class (IIC) rating of not less than 50 (45 if field tested) when tested in accordance with ASTM E 492.

**Exception:** Floor assemblies in the bathrooms of Group R-1 occupancies are not required to meet the impact insulation class of 50 where structural concrete floor systems are used.

Joints in the perimeter of the separating wall or floor-ceiling assemblies shall be acoustically sealed with a permanent resilient material approved for the purpose. The separating wall or

1 floor-ceiling assembly shall extend completely to and be sealed to another separating assembly or  
2 an exterior wall, roof or floor assembly.

3 Conduits, ducts, pipes and vents within the wall or floor-ceiling assemblies causing vibration  
4 shall be reasonably isolated from the building construction at points of support by means of  
5 resilient sleeves, mounts or underlayments. All other openings through which such conduits,  
6 ducts, pipes or vents pass shall have the excess opening fully sealed with insulative and  
7 permanently resilient materials approved for the purpose.

9 Electrical outlet boxes shall not be placed back-to-back and shall be offset by not less than 12  
10 inches (305 mm) from outlets in the opposite wall surface. The back and sides of boxes shall be  
11 sealed with one-eighth-inch resilient sealant and backed by a minimum of 2-inch (51 mm) thick  
12 material fiber insulation or approved equivalent.

14 Metal ventilating and conditioned air ducts which pass between dwelling units shall be  
15 fabricated and installed to maintain required sound transmission ratings.

16 **1207.4 Tested assemblies.** Field- or laboratory-tested wall or floor-ceiling designs having an  
17 STC or IIC of 50 or more are permitted to be used without additional field testing when, in the  
18 opinion of the building official, the tested design has not been compromised by flanking paths.  
19 The building official is permitted to require tests when evidence of compromised separations is  
20 noted.

22 **1207.5 Field testing and certification.** Field testing, when permitted to determine airborne  
23 sound transmission or impact sound insulation class, shall be done in accordance with ASTM E  
24 336 or ASTM E 492 under the supervision of an acoustical professional who is experienced in  
25

the field of acoustical testing and engineering and who shall forward certified test results to the building official that minimum sound insulation requirements stated above have been met.

**1207.6 Mechanical equipment spaces.** Spaces or shafts containing air conditioning, refrigeration or ventilating equipment, elevator machinery, or other mechanical equipment shall be separated both vertically and horizontally from adjoining dwelling units or guest rooms by construction designed to provide a minimum STC rating of 50.

**1207.7 Sound transmission control systems.** Generic systems as listed in GA 600-00 shall be accepted where a laboratory test indicates that the requirements of Section 1207 are met by the system.

**Note:** Design and materials for sound transmission control shall not impair the fire-resistive integrity of separating walls or floor-ceiling assemblies required to be of fire-resistive construction.

## SECTION 1208

### INTERIOR SPACE DIMENSIONS

\*\*\*

**1208.2 Minimum ceiling heights.** Occupiable spaces((;)) and *habitable spaces* ((~~and corridors~~)) shall have a ceiling height of not less than 7 feet 6 inches (2286 mm). Bathrooms, toilet rooms, kitchens, storage rooms and laundry rooms shall be permitted to have a ceiling height of not less than 7 feet (2134 mm).

**Exceptions:**

1. In ~~((one and two family dwellings))~~ dwelling units, beams or girders spaced not less than 4 feet (1219 mm) on center and projecting not more than 6 inches (152 mm) below the required ceiling height.

2. If any room in a building has a sloped ceiling, the prescribed ceiling height for the room is required in one-half the area thereof. Any portion of the room measuring less than 5 feet (1524 mm) from the finished floor to the ceiling shall not be included in any computation of the minimum area thereof.

3. *Mezzanines* constructed in accordance with Section 505.1.

Notwithstanding the exceptions to Section 1208.2, protruding objects in circulation routes in spaces required to be accessible shall comply with Chapter 11 and ANSI A117.1 Section 307.

**1208.2.1 Furred ceiling.** Any room with a furred ceiling shall be required to have the minimum ceiling height in two-thirds of the area thereof, but in no case shall the height of the furred ceiling be less than 7 feet (2134 mm).

**1208.3 Room area.** Every *dwelling unit* shall have at least one room that shall have not less than 120 square feet (13.9 m<sup>2</sup>) of *net floor area*. Other habitable rooms shall have a *net floor area* of not less than 70 square feet (6.5 m<sup>2</sup>).

**Exception:** ~~((Every kitchen in a one and two family dwelling shall have not less than 50 square feet (4.64 m<sup>2</sup>) of gross floor area.))~~ Kitchens in one- and two-family dwellings.

**1208.4 Efficiency dwelling units.** An efficiency living unit shall conform to the requirements of the code except as modified herein:

1. The unit shall have a living room of not less than 220 square feet (20.4 m<sup>2</sup>) of floor area. An additional 100 square feet (9.3 m<sup>2</sup>) of floor area shall be provided for each occupant of such unit in excess of two.

**Interpretation I1208.4:** The required square footage shall not include built-in equipment that extends from floor to ceiling such as wardrobes, cabinets, kitchen units or fixtures.

2. The unit shall be provided with a separate closet.

3. The unit shall be provided with a kitchen sink, cooking appliance and refrigeration facilities, each having a clear working space of not less than 30 inches (762 mm) in front. Light and ventilation conforming to this code shall be provided.

4. The unit shall be provided with a separate bathroom containing a water closet, lavatory and bathtub or shower.

\*\*\*

## SECTION 1210

### SURROUNDING MATERIALS

\*\*\*

**[W]1210.5 Toilet rooms.** ~~((Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.))~~ See Section 2902.2.1.1.

Section 14. The following section of Chapter 13 of the International Building Code, 2009 Edition, is amended as follows:

## CHAPTER 13

### ENERGY EFFICIENCY

## SECTION 1301

### GENERAL

**1301.1 Scope.** This chapter governs the design and construction of buildings for energy efficiency.

**1301.1.1 Criteria.** Buildings shall be designed and constructed in accordance with the ~~((*International Energy Conservation Code*))~~ *Washington State Energy Code with Seattle Amendments.*

Section 15. The following sections of Chapter 14 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 14

### EXTERIOR WALLS

\*\*\*

## SECTION 1403

### PERFORMANCE REQUIREMENTS

**1403.1 General.** The provisions of this section shall apply to exterior walls, wall coverings and components thereof.

**[W] 1403.2 Weather protection.** Exterior walls shall provide the building with a weather-resistant *exterior wall envelope*. The *exterior wall envelope* shall include flashing, as described in Section 1405.4. The *exterior wall envelope* shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a *water-resistive barrier* behind the exterior veneer, as described in Section 1404.2, and a means for draining



1 water that enters the assembly to the exterior. (~~Protection against condensation in the exterior~~  
2 ~~wall assembly shall be provided in accordance with Section 1405.3.~~) An air space cavity is not  
3 required under the exterior cladding for an exterior wall clad with lapped or panel siding made of  
4 plywood, engineered wood, hardboard, or fiber cement. Protection against condensation in the  
5 exterior wall assembly shall be provided in accordance with Section 1405.3.  
6

7 **Exceptions:**

8 1. A weather-resistant *exterior wall envelope* shall not be required over concrete or masonry  
9 walls designed in accordance with Chapters 19 and 21, respectively.

10 2. Compliance with the requirements for a means of drainage, and the requirements of Sections  
11 1404.2 and 1405.4, shall not be required for an *exterior wall envelope* that has been demonstrated  
12 through testing to resist wind-driven rain, including joints, penetrations and intersections with  
13 dissimilar materials, in accordance with ASTM E 331 under the following conditions:

14 2.1. *Exterior wall envelope* test assemblies shall include at least one opening, one control joint,  
15 one wall/eave interface and one wall sill. All tested openings and penetrations shall be  
16 representative of the intended end-use configuration.  
17

18 2.2. *Exterior wall envelope* test assemblies shall be at least 4 feet by 8 feet (1219 mm by 2438  
19 mm) in size.  
20

21 2.3. *Exterior wall envelope* assemblies shall be tested at a minimum differential pressure of 6.24  
22 pounds per square foot (psf) (0.297 kN/m<sup>2</sup>).  
23

24 2.4. *Exterior wall envelope* assemblies shall be subjected to a minimum test exposure duration of  
25 2 hours.  
26

The *exterior wall envelope* design shall be considered to resist wind-driven rain where the results of testing indicate that water did not penetrate control joints in the *exterior wall* envelope, joints at the perimeter of openings or intersections of terminations with dissimilar materials.

3. Exterior insulation and finish systems (EIFS) complying with Section 1408.4.1.

**Interpretation I1403.2:** According to Section 1403.2, a rain screen or similar construction method is not required for most exterior siding and cladding, and single-wall construction is allowed. Drainage methods should conform to the manufacturer's installation instructions and other sections of the code.

**Note:** The "water-resistive barrier" behind the exterior wall covering provides "drainage" of the water that may enter an exterior wall envelope. If water penetrates the exterior wall covering, the felt paper or other approved material will direct the water to the bottom of the wall where it will escape to the exterior.

\*\*\*

## SECTION 1405

### INSTALLATION OF WALL COVERINGS

\*\*\*

**1405.3 Vapor retarders.** Class I or II vapor retarders shall be provided on the interior side of frame walls in Zones 5, 6, 7, 8 and Marine 4. Seattle is in Zone Marine 4.

**Exceptions:**

1. Basement walls.
2. Below-grade portion of any wall.

3. Construction where moisture or its freezing will not damage the materials.

**1405.3.1 Class III vapor retarders.** Class III vapor retarders shall be permitted where any one of the conditions in Table 1405.3.1 is met.

**1405.3.2 Material vapor retarder class.** The *vapor retarder class* shall be based on the manufacturer's certified testing or a tested assembly.

The following shall be deemed to meet the class specified:

Class I: Sheet polyethylene, nonperforated aluminum foil

Class II: Kraft-faced fiberglass batts or paint with a perm rating greater than 0.1 and less than or equal to 1.0

Class III: Latex or enamel paint

**Note:** Minimum perm ratings for vapor retarders are specified in the definition of "vapor retarder class" in Chapter 2.

**1405.3.3 Minimum clear airspaces and vented openings for vented cladding.** For the purposes of this section, vented cladding shall include the following minimum clear airspaces.

1. Vinyl lap or horizontal aluminum siding applied over a weather-resistive barrier as specified in this chapter.
2. Brick veneer with a clear airspace as specified in this code.
3. Other *approved* vented claddings.

**TABLE 1405.3.1**

**CLASS III VAPOR RETARDERS**

ZONE	CLASS III VAPOR RETARDERS PERMITTED FOR: <sup>a</sup>
------	---

1		Vented cladding over OSB
2		Vented cladding over plywood
3	Marine	Vented cladding over fiberboard
4	4	Vented cladding over gypsum
5		Insulated sheathing with R-value ; R2.5 over 2x4 wall
6		Insulated sheathing with R-value ; R3.75 over 2x6 wall
7		
8	-	<del>((Vented cladding over OSB</del>
9	-	<del>Vented cladding over plywood</del>
10	5	<del>Vented cladding over fiberboard</del>
11	-	<del>Vented cladding over gypsum</del>
12	-	<del>Insulated sheathing with R value ; R5 over 2x4 wall</del>
13	-	<del>Insulated sheathing with R value ; R7.5 over 2x6 wall</del>
14	-	
15	-	<del>Vented cladding over fiberboard</del>
16	6	<del>Vented cladding over gypsum</del>
17	-	<del>Insulated sheathing with R value ; R7.5 over 2x4 wall</del>
18	-	<del>Insulated sheathing with R value ; R11.25 over 2x6 wall</del>
19	-	
20	7 and 8	<del>Insulated sheathing with R value ; R10 over 2x4 wall</del>
21	-	<del>Insulated sheathing with R value ; R15 over 2x6 wall))</del>
22		

For SI: 1 pound per cubic foot = 16 kg/m3.

a. Spray foam with a minimum density of 2 lbs/ft<sup>3</sup> applied to the interior cavity side of OSB, plywood, fiberboard, insulating sheathing or gypsum is deemed to meet the insulating sheathing

requirement where the spray foam *R*-value meets or exceeds the specified insulating sheathing *R*-value.

\*\*\*

**1405.6 Anchored masonry veneer.** Anchored masonry veneer shall comply with the provisions of Sections 1405.6, 1405.7, 1405.8 and 1405.9 and Sections 6.1 and 6.2 of TMS 402/ACI 530/ASCE 5.

**1405.6.1 Tolerances.** Anchored masonry veneers in accordance with Chapter 14 are not required to meet the tolerances in Article 3.3 G1 of TMS 602/ACI 530.1/ASCE 6.

**[W]1405.6.2 Seismic requirements.** Anchored masonry veneer located in Seismic Design Category C, D, E or F shall conform to the requirements of Section 6.2.2.10, except Section 6.2.2.10.3.2 of TMS 402/ACI 530/ASCE 5. (~~Anchored masonry veneer located in Seismic Design Category D shall also conform to the requirements of Section 6.2.2.10.3.3 of TMS 402/ACI 530/ASCE 5.~~)

\*\*\*

## SECTION 1408

### EXTERIOR INSULATION AND FINISH SYSTEMS

#### (EIFS)

\*\*\*

~~((1408.6 Special inspections. EIFS installations shall comply with the provisions of Sections 1704.1 and 1704.14.))~~

\*\*\*

Section 16. The following sections of Chapter 15 of the International Building Code, 2009 Edition, are amended as follows:

\*\*\*

## SECTION 1503

### WEATHER PROTECTION

\*\*\*

**[P] 1503.4 Roof drainage.** Design and installation of roof drainage systems shall comply with Section 1503 and the

~~((International))~~ Uniform Plumbing Code.

**1503.4.1 Secondary drainage required.** Secondary (emergency) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason.

**1503.4.2 Scuppers.** When scuppers are used for secondary (emergency overflow) roof drainage, the quantity, size, location and inlet elevation of the scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1503.4.1. Scuppers shall not have an opening dimension of less than 4 inches (102 mm). The flow through the primary system shall not be considered when locating and sizing scuppers.

**1503.4.3 Gutters.** Gutters and leaders placed on the outside of buildings, other than Group R-3, private garages and buildings of Type V construction, shall be of noncombustible material or a minimum of Schedule 40 plastic pipe.

\*\*\*

## SECTION 1505

### FIRE CLASSIFICATION

\*\*\*

**TABLE 1505.1((a,)) b**

#### MINIMUM ROOF COVERING CLASSIFICATION FOR TYPES OF CONSTRUCTION

IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
B	B	B	Cc	B	Cc	B	B	Cc

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929m<sup>2</sup>.

~~((a. Unless otherwise required in accordance with the *International Wildland Urban Interface Code* or due to the location of the building within a fire district in accordance with Appendix D.))~~

b. Nonclassified roof coverings shall be permitted on buildings of Group R-3 and Group U occupancies, where there is a minimum fire-separation distance of 6 feet measured from the leading edge of the roof.

c. Buildings that are not more than two stories above grade plane and having not more than 6,000 square feet of projected roof area and where there is a minimum 10-foot fire-separation distance from the leading edge of the roof to a lot line on all sides of the building, except for street fronts or public ways, shall be permitted to have roofs of No. 1 cedar or redwood shakes and No. 1 shingles.

\*\*\*

## SECTION 1507

### REQUIREMENTS FOR ROOF COVERINGS

\*\*\*

**1507.16 Roof gardens and landscaped roofs.** Roof gardens and landscaped roofs shall comply with the requirements of this chapter and Sections ((~~1607.11.2.2 and~~) 1607.11.3 and 1607.11.3.1.

\*\*\*

Section 17. The following sections of Chapter 16 of the International Building Code, 2009 Edition, are amended as follows:

\*\*\*

**CHAPTER 16**  
**STRUCTURAL DESIGN**  
**SECTION 1601**  
**GENERAL**

**1601.1 Scope.** The provisions of this chapter shall govern the structural design of buildings, structures and portions thereof regulated by this code.

**Exception:** Carports are not required to comply with this chapter if they satisfy all the following criteria:

1. Accessory to Group R-3 occupancies,
2. Used to shelter only vehicles, trailers or vessels,
3. Constructed of metal, plastic or fabric,
4. No more than 3 pounds per square foot in total weight, and
5. No more than 300 square feet covered area.



\*\*\*

## SECTION 1603

### CONSTRUCTION DOCUMENTS

**1603.1 General.** *Construction documents* shall show the size, section and relative locations of structural members with floor levels, column centers and offsets dimensioned. The design loads and other information pertinent to the structural design required by Sections 1603.1.1 through 1603.1.9 shall be indicated on the *construction documents*.

**Exception:** *Construction documents* for buildings constructed in accordance with the *conventional light-frame construction* provisions of Section 2308 shall indicate the following structural design information:

1. Floor and roof live loads.
2. ~~((Ground))~~ ~~((s))~~ Snow load ~~((Pg))~~.
3. Basic wind speed (3-second gust), miles per hour (mph) (km/hr) and wind exposure.
4. *Seismic design category* and *site class*.
5. Flood design data, if located in *flood hazard areas* established in Section 1612.3.
6. Design load-bearing values of soils.

**1603.1.1 Floor live load.** The uniformly distributed, concentrated and impact floor live load used in the design shall be indicated for floor areas. Use of live load reduction in accordance with Section 1607.9 shall be indicated for each type of live load used in the design.

**1603.1.2 Roof and snow live load.** The roof live and snow loads used in the design shall be indicated for roof areas (Sections 1607.11 and 1608).

~~((1603.1.3 Roof snow load. The ground snow load,  $P_g$ , shall be indicated. In areas where the ground snow load,  $P_g$ , exceeds 10 pounds per square foot (psf) (0.479 kN/m<sup>2</sup>), the following additional information shall also be provided, regardless of whether snow loads govern the design of the roof:~~

- ~~1. Flat roof snow load,  $P_f$ .~~
- ~~2. Snow exposure factor,  $C_e$ .~~
- ~~3. Snow load importance factor,  $I$ .~~
- ~~4. Thermal factor,  $C_t$ .)~~

**1603.1.4 Wind design data.** The following information related to wind loads shall be shown, regardless of whether wind loads govern the design of the lateral-force-resisting system of the building:

1. Basic wind speed (3-second gust), miles per hour (km/hr).
2. Wind importance factor,  $I$ , and *occupancy category*.
3. Wind exposure. Where more than one wind exposure is utilized, the wind exposure and applicable wind direction shall be indicated.
4. The applicable internal pressure coefficient.
5. Components and cladding. The design wind pressures in terms of psf (kN/m<sup>2</sup>) to be used for the design of exterior component and cladding materials not specifically designed by the *registered design professional*.

**1603.1.5 Earthquake design data.** The following information related to seismic loads shall be shown, regardless of whether seismic loads govern the design of the lateral- force-resisting system of the building:

1. Seismic importance factor, *I*, and *occupancy category*.
2. Mapped spectral response accelerations, *SS* and *SI*.
3. *Site class*.
4. Spectral response coefficients, *SDS* and *SDI*.
5. *Seismic design category*.
6. Basic seismic-force-resisting system(s).
7. Design base shear.
8. Seismic response coefficient(s), *CS*.
9. Response modification factor(s), *R*.
10. Analysis procedure used.

**1603.1.6 Geotechnical information.** The design loadbearing values of soils shall be shown on the *construction documents*.

**1603.1.7 Flood design data.** For buildings located in whole or in part in *flood hazard areas* as established in Section 1612.3, the documentation pertaining to design, if required in Section 1612.5, shall be included and the following information, referenced to the datum on the community's Flood Insurance Rate Map (FIRM), shall be shown, regardless of whether flood loads govern the design of the building:

1. In *flood hazard areas* not subject to high-velocity wave action, the elevation of the proposed lowest floor, including the basement.

2. In *flood hazard areas* not subject to high-velocity wave action, the elevation to which any nonresidential building will be dry floodproofed.

3. In *flood hazard areas* subject to high-velocity wave action, the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement.

**1603.1.8 Special loads.** Special loads that are applicable to the design of the building, structure or portions thereof shall be indicated along with the specified section of this code that addresses the special loading condition.

**1603.1.9 Systems and components requiring special inspections for seismic resistance.**

*Construction documents* or specifications shall be prepared for those systems and components requiring *special inspection* for seismic resistance as specified in Section 1707.1 by the *registered design professional* responsible for their design and shall be submitted for approval in accordance with Section 107.1. Reference to seismic standards in lieu of detailed drawings is acceptable.

Note: Floor and roof design load provisions regarding posting of live loads, issuance of certificates of occupancy and restrictions on loading are located in Section 107 Floor and Roof Design Loads.

\*\*\*

**SECTION 1605**

**LOAD COMBINATIONS**

\*\*\*

## **1605.2 Load combinations using strength design or load and resistance factor design.**

**Interpretation I1605:** The lateral pressure on basement and retaining walls due to earthquake motions, as required in Section 1803.5.12, is permitted to be considered as an earthquake load  $E$  for the purposes of use in load combinations.

**1605.2.1 Basic load combinations.** Where strength design or *load and resistance factor design* is used, structures and portions thereof shall resist the most critical effects from the following combinations of factored loads:

$1.4(D+F)$  (**Equation 16-1**)

$1.2(D + F + T) + 1.6(L + H) +$

$0.5(Lr \text{ or } S \text{ or } R)$  (**Equation 16-2**)

$1.2D + 1.6(Lr \text{ or } S \text{ or } R) + (f_1L \text{ or } 0.8W)$  (**Equation 16-3**)

$1.2D + 1.6W + f_1L + 0.5(Lr \text{ or } S \text{ or } R)$  (**Equation 16-4**)

$1.2D + 1.0E + f_1L + f_2S$  (**Equation 16-5**)

$0.9D + 1.6W + 1.6H$  (**Equation 16-6**)

$0.9D + 1.0E + 1.6H$  (**Equation 16-7**)

where:

$f_1 = 1$  for floors in places of public assembly, for live loads in excess of 100 pounds per square foot (4.79 kN/m<sup>2</sup>), and for parking garage live load, and = 0.5 for other live loads.

$f_2 = 0.7$  for roof configurations (such as saw tooth) that do not shed snow off the structure, and = 0.2 for other roof configurations.

**Exception:** Where other factored load combinations are specifically required by the provisions of this code, such combinations shall take precedence.

**1605.2.2 Flood loads.** Where flood loads,  $F_a$ , are to be considered in the design, the load combinations of Section 2.3.3 of ASCE 7 shall be used.

\*\*\*

## SECTION 1607

### LIVE LOADS

\*\*\*

**TABLE 1607.1**

**MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS,  $L_o$ , AND  
 MINIMUM CONCENTRATED LIVE LOADS<sup>g</sup>**

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
1. Apartments (see residential)	—	—
2. Access floor systems		
Office use	50	2,000
Computer use	100	2,000
3. Armories and drill rooms	150	—

1	4. Assembly areas and theaters		
2	Fixed seats (fastened to floor)		
3	Follow spot, projections and control	60	
4	rooms	50	
5	Lobbies	100	
6	Movable seats	100	
7	Stages and platforms	125	
8	Other assembly areas	100	—
9			
10		Same as occupancy	
11	5. Balconies (exterior) and decks <sup>h,m</sup>	served	—
12			
13	6. Bowling alleys	75	—
14	7. Catwalks	40	300
15	8. <u>Canopies<sup>g</sup> and Cornices</u>	60	—
16	9. Corridors, except as otherwise indicated	100	—
17	10. Dance halls and ballrooms	100	—
18	11. Dining rooms and restaurants	100	—
19	12. Dwellings (see residential)	—	—
20	13. Elevator machine room grating (on area		
21	of 4 in2)	—	300
22	14. Finish light floor plate construction (on	—	200
23			
24			
25			
26			
27			
28			

1	area of 1 in <sup>2</sup> )		
2	15. Fire escapes	100	
3	On single-family dwellings only	40	—
4	16. Garages (passenger vehicles only)	40	Note a
5	Trucks and buses	See Section 1607.6	See Section 1607.6
6			
7	17. Grandstands (see stadium and arena		
8	bleachers)	—	—
9	18. Gymnasiums, main floors and balconies	100	—
10			
11	19. Handrails, guards and grab bars	See Section 1607.7	
12	20. Hospitals		
13	Corridors above first floor	80	1,000
14	Operating rooms, laboratories	60	1,000
15	Patient rooms	40	1,000
16			
17	21. Hotels (see residential)	—	—
18	22. Libraries		
19	Corridors above first floor	80	1,000
20	Reading rooms	60	1,000
21	Stack rooms	150 <sup>b</sup>	1,000
22			
23	23. Manufacturing	250	3,000
24	Heavy	125	2,000
25			
26			
27			
28			



1	Light		
2			
3	24. ( <del>Marquees</del>	75	—))
4	<u>Reserved</u>		
5	25. Office buildings		
6	Corridors above first floor		
7	File and computer rooms shall be	80	2,000
8	designed for heavier loads based on	—	—
9	anticipated occupancy		
10			
11	Lobbies and first-floor corridors	100	2,000
12	Offices	50	2,000
13			
14	26. Penal institutions		
15	Cell blocks	40	
16	Corridors	100	—
17	27. Residential	10	
18	One- and two-family dwellings	20	
19	Uninhabitable attics without storage <sup>i</sup>	30	
20	Uninhabitable attics with limited	40	
21	storage <sup>i, j, k</sup>		
22			
23	Habitable attics and sleeping areas	40	
24	All other areas	100	
25			
26			
27			
28			

Hotels and multifamily dwellings		
Private rooms and corridors serving them		
Public rooms and corridors serving them		
28. Reviewing stands, grandstands and bleachers	Note c	
29. Roofs		
All roof surfaces subject to maintenance workers		300
Awnings and canopies	5 Nonreducible	
Fabric construction supported by a lightweight rigid skeleton structure	20	
All other construction	20	
Ordinary flat, pitched, and curved roofs		
Where primary ((Primary)) roof members((;)) are exposed to a work floor, at single ((Single)) panel point of lower chord of roof trusses or any point along primary structural members supporting roofs:		

1	Over manufacturing, storage	Note 1	2,000
2	warehouses, and repair garages	60	300
3	All other occupancies	100	Note 1
4	Roofs used for other special purposes		
5	Roofs used for promenade purposes		
6	Roofs used for roof gardens or assembly		
7	purposes		
9	30. Schools		
10	Classrooms	40	1000
11	Corridors above first floor	80	1000
12	First-floor corridors	100	1000
14	31. Scuttles, skylight ribs and accessible		
15	ceilings	—	200
17	32. Sidewalks, vehicular driveways and		
18	yards, subject to trucking	250d	8,000e
19	33. Skating rinks	100	—
20	34. Stadiums and arenas		
21	Bleachers	100 <sup>c</sup>	—
22	Fixed seats (fastened to floor)	60 <sup>c</sup>	
24	35. Stairs and exits	40	
25	One- and two-family dwellings	100	Note f

All other		
36. Storage warehouses (shall be designed for heavier loads if required for anticipated storage)		
Heavy	250	
Light	125	
37. Stores		
Retail		
First floor	100	1000
Upper floors	75	1000
Wholesale, all floors	125	1000
38. Vehicle barrier systems	See Section 1607.7.3	
39. Walkways and elevated platforms (other than exitways)	60	—
40. Yards and terraces, pedestrians	100	—

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm<sup>2</sup>, 1 square foot = 0.0929 m<sup>2</sup>, 1 pound per

square foot = 0.0479 kN/m<sup>2</sup>, 1 pound = 0.004448 kN, 1 pound per cubic foot = 16 kg/m<sup>3</sup>

a. Floors in garages or portions of buildings used for the storage of motor vehicles shall be designed for the uniformly distributed live loads of Table 1607.1 or the following concentrated loads:

(1) for garages restricted to passenger vehicles accommodating not more than nine passengers, 3,000 pounds acting on an area of 4.5 inches by 4.5 inches;

(2) for mechanical parking structures without slab or deck which are used for storing passenger vehicles only, 2,250 pounds per wheel.

b. The loading applies to stack room floors that support nonmobile, double-faced library bookstacks, subject to the following limitations:

1. The nominal bookstack unit height shall not exceed 90 inches;

2. The nominal shelf depth shall not exceed 12 inches for each face; and

3. Parallel rows of double-faced bookstacks shall be separated by aisles not less than 36 inches wide.

c. Design in accordance with the ICC 300.

d. Other uniform loads in accordance with an approved method which contains provisions for truck loadings shall also be considered where appropriate.

e. The concentrated wheel load shall be applied on an area of 4.5 inches by 4.5 inches.

f. Minimum concentrated load on stair treads (on area of 4 square inches) is 300 pounds.

g. ~~((Where snow loads occur that are in excess of the design conditions, the structure shall be designed to support the loads due to the increased loads caused by drift buildup or a greater snow design determined by the building official (see Section 1608). For special purpose roofs, see Section 1607.11.2.2.~~

h. ~~See Section 1604.8.3 for decks attached to exterior walls.))~~ This loading condition need only be considered for canopies that meet all of the following conditions.

1 i. The upper surface is sloped less than 30 degrees (0.5 rad) from horizontal; and

2 ii. The canopy is located adjacent to a right of way or assembly area; and

3 iii. The canopy is located less than 10 feet (3048 mm) above the ground at all points, or less than  
4 10 feet (3048mm) below an adjacent roof, or less than 10 feet (3048 mm) from operable  
5 openings above or adjacent to the level of the canopy.

6 For other canopies, roof loads as specified in this chapter shall be applied.

7 Canopy is defined in Section 202.

8  
9 i. Attics without storage are those where the maximum clear height between the joist and rafter is  
10 less than 42 inches, or where there are not two or more adjacent trusses with the same web  
11 configuration capable of containing a rectangle 42 inches high by 2 feet wide, or greater, located  
12 within the plane of the truss. For attics without storage, this live load need not be assumed to act  
13 concurrently with any other live load requirements.

14  
15 j. For attics with limited storage and constructed with trusses, this live load need only be applied  
16 to those portions of the bottom chord where there are two or more adjacent trusses with the same  
17 web configuration capable of containing a rectangle 42 inches high by 2 feet wide or greater,  
18 located within the plane of the truss. The rectangle shall fit between the top of the bottom chord  
19 and the bottom of any other truss member, provided that each of the following criteria is met:

20  
21 i. The attic area is accessible by a pull-down stairway or framed opening in accordance with  
22 Section 1209.2, and

23  
24 ii. The truss shall have a bottom chord pitch less than 2:12.

1 iii. Bottom chords of trusses shall be designed for the greater of actual imposed dead load or 10  
2 psf, uniformly distributed over the entire span.

3 k. Attic spaces served by a fixed stair shall be designed to support the minimum live load  
4 specified for habitable attics and sleeping rooms.

5 l. Roofs used for other special purposes shall be designed for appropriate loads as approved by  
6 the building official. Unoccupied landscaped areas of roofs shall be designed in accordance with  
7 Section 1607.11.3.

8 m. Decks and balconies that are accessed only from a dwelling unit or private office must comply  
9 with live load requirements of the occupancy served. Other decks and balconies are considered  
10 “other assembly areas.”

11 \*\*\*

12  
13  
14 **1607.9 Reduction in live loads.** Except for uniform live loads at roofs, all other minimum  
15 uniformly distributed live loads,  $L_o$ , in Table 1607.1 are permitted to be reduced in accordance  
16 with Section 1607.9.1 or 1607.9.2. Roof uniform live loads, other than special purpose roofs of  
17 Section ((1607.11.2.2)) 1607.11.3, are permitted to be reduced in accordance with Section  
18 1607.11.2. Roof uniform live loads of special purpose roofs are permitted to be reduced in  
19 accordance with Section 1607.9.1 or 1607.9.2.

20  
21 **1607.9.1 General.** Subject to the limitations of Sections 1607.9.1.1 through 1607.9.1.4, members  
22 for which a value of  $KLLAT$  is 400 square feet (37.16 m<sup>2</sup>) or more are permitted to be designed  
23 for a reduced live load in accordance with the following equation:  
24

$$L = L_o \left( 0.25 + \frac{15}{\sqrt{K_{LL} A_T}} \right) \quad (\text{Equation 16-22})$$

$$\text{For SI: } L = L_o \left( 0.25 + \frac{4.57}{\sqrt{K_{LL} A_T}} \right)$$

where:

$L$  = Reduced design live load per square foot (meter) of area supported by the member.

$L_o$  = Unreduced design live load per square foot (meter) of area supported by the member (see Table 1607.1).

$K_{LL}$  = Live load element factor (see Table 1607.9.1).

$A_T$  = Tributary area, in square feet (square meters).

$L$  shall not be less than  $0.50L_o$  for members supporting one floor and  $L$  shall not be less than  $0.40L_o$  for members supporting two or more floors.

**1607.9.1.1 One-way slabs.** The tributary area,  $A_T$ , for use in Equation 16-22 for one-way slabs shall not exceed an area defined by the slab span times a width normal to the span of 1.5 times the slab span.

**1607.9.1.2 Heavy live loads.** Live loads that exceed 100 psf (4.79 kN/m<sup>2</sup>) shall not be reduced.

**Exceptions:**

1. The live loads for members supporting two or more floors are permitted to be reduced by a maximum of 20 percent, but the live load shall not be less than  $L$  as calculated in Section 1607.9.1.



2. For uses other than storage, where *approved*, additional live load reductions shall be permitted where shown by the *registered design professional* that a rational approach has been used and that such reductions are warranted.

**1607.9.1.3 Passenger vehicle garages.** The live loads shall not be reduced in passenger vehicle garages.

**Exception:** The live loads for members supporting two or more floors are permitted to be reduced by a maximum of 20 percent, but the live load shall not be less than *L* as calculated in Section 1607.9.1.

**1607.9.1.4 Group A occupancies.** Live loads of 100 psf (4.79 kN/m<sup>2</sup>) and at areas where fixed seats are located shall not be reduced in Group A occupancies.

**1607.9.1.5 Roof members.** Live loads of 100 psf (4.79 kN/m<sup>2</sup>) or less shall not be reduced for roof members except as specified in Section 1607.11.2.

**1607.9.2 Alternate floor live load reduction.** As an alternative to Section 1607.9.1, floor live loads are permitted to be reduced in accordance with the following provisions. Such reductions shall apply to slab systems, beams, girders, columns, piers, walls and foundations.

1. A reduction shall not be permitted in Group A occupancies.

2. A reduction shall not be permitted where the live load exceeds 100 psf (4.79 kN/m<sup>2</sup>) except that the design live load for members supporting two or more floors is permitted to be reduced by 20 percent.

**Exception:** For uses other than storage, where *approved*, additional live load reductions shall be permitted where shown by the *registered design professional* that a rational approach has been used and that such reductions are warranted.

3. A reduction shall not be permitted in passenger vehicle parking garages except that the live loads for members supporting two or more floors are permitted to be reduced by a maximum of 20 percent.

4. For live loads not exceeding 100 psf (4.79 kN/m<sup>2</sup>), the design live load for any structural member supporting 150 square feet (13.94 m<sup>2</sup>) or more is permitted to be reduced in accordance with Equation 16-23.

5. For one-way slabs, the area, *A*, for use in Equation 16-23 shall not exceed the product of the slab span and a width normal to the span of 0.5 times the slab span.

$R = 0.08(A - 150)$  (**Equation 16-23**)

For SI:  $R = 0.861(A - 13.94)$

Such reduction shall not exceed the smallest of:

1. 40 percent for horizontal members;
2. 60 percent for vertical members; or
3. *R* as determined by the following equation.

$R = 23.1(1 + D/L_o)$  (**Equation 16-24**)

where:

*A* = Area of floor supported by the member, square feet (m<sup>2</sup>).

*D* = Dead load per square foot (m<sup>2</sup>) of area supported.

$L_o$  = Unreduced live load per square foot (m<sup>2</sup>) of area supported.

$R$  = Reduction in percent.

\*\*\*

**1607.11 Roof loads.** The structural supports of roofs and ~~((marquees))~~ canopies shall be designed to resist wind and, where applicable, snow and earthquake loads, in addition to the dead load of construction and the appropriate live loads as prescribed in this section ~~((, or as set forth in Table 1607.1))~~. The live loads acting on a sloping surface shall be assumed to act vertically on the horizontal projection of that surface.

**1607.11.1 Distribution of roof loads.** Where uniform roof live loads are reduced to less than 20 psf (0.96 kN/m<sup>2</sup>) in accordance with Section 1607.11.2.1 and are applied to the design of structural members arranged so as to create continuity, the reduced roof live load shall be applied to adjacent spans or to alternate spans, whichever produces the most unfavorable *load effect*. See Section 1607.11.2 for reductions in minimum roof live loads and Section 7.5 of ASCE 7 for ~~((partial))~~ snow loading.

**1607.11.2 Reduction in roof live loads.** The minimum uniformly distributed live loads of roofs and ~~((marquees))~~ canopies,  $L_o$ , in Table 1607.1 are permitted to be reduced in accordance with Section 1607.11.2.1 ~~((or 1607.11.2.2))~~.

**1607.11.2.1 Flat, pitched and curved roofs.** Ordinary flat, pitched and curved roofs, and awnings and canopies other than of fabric construction supported by lightweight rigid skeleton structures, are permitted to be designed for a reduced roof live load as specified in the following equations or other controlling combinations of loads in Section 1605, whichever produces the

greater load. In structures such as greenhouses, where special scaffolding is used as a work surface for workers and materials during maintenance and repair operations, a lower roof load than specified in the following equations shall not be used unless *approved* by the *building official*. Such structures shall be designed for a minimum roof live load of 12 psf (0.58 kN/m<sup>2</sup>).

$$L_r = L_o R_1 R_2 \text{ (Equation 16-25)}$$

where:  $12 \leq L_r \leq 20$

For SI:  $L_r = L_o R_1 R_2$

where:  $0.58 \leq L_r \leq 0.96$

$L_r$  = Reduced live load per square foot (m<sup>2</sup>) of horizontal projection in pounds per square foot (kN/m<sup>2</sup>).

The reduction factors  $R_1$  and  $R_2$  shall be determined as follows:

$$R_1 = 1 \text{ for } A_t \leq 200 \text{ square feet (18.58m}^2\text{) (Equation 16-26)}$$

$$R_1 = 1.2 - 0.001A_t \text{ for } 200 \text{ square feet} < A_t < 600 \text{ square feet (Equation 16-27)}$$

For SI:  $1.2 - 0.011A_t$  for 18.58 square meters  $< A_t < 55.74$  square meters

$$R_1 = 0.6 \text{ for } A_t \geq 600 \text{ square feet (55.74m}^2\text{) (Equation 16-28)}$$

where:

$A_t$  = Tributary area (span length multiplied by effective width) in square feet (m<sup>2</sup>) supported by any structural member, and

$$R_2 = 1 \text{ for } F \leq 4 \text{ (Equation 16-29)}$$

$$R_2 = 1.2 - 0.05 F \text{ for } 4 < F < 12 \text{ (Equation 16-30)}$$

$$R_2 = 0.6 \text{ for } F \geq 12 \text{ (Equation 16-31) where:}$$

$F$  = For a sloped roof, the number of inches of rise per foot (for SI:  $F = 0.12 \times \text{slope}$ , with slope expressed as a percentage), or for an arch or dome, the rise-to-span ratio multiplied by 32.

**1607.11.3 ((1607.11.2.2)) Special-purpose roofs.** Roofs used for promenade purposes, roof gardens, ((assembly purposes)) or other special purposes, and ((marquees)) canopies, shall be designed for a minimum live load,  $L_o$ , as specified in Table 1607.1. Such live loads are permitted to be reduced in accordance with Section 1607.9 for other than roofs used for assembly purposes. Live loads of 100 psf (4.79 kN/m<sup>2</sup>) or more at areas of roofs classified as Group A occupancies shall not be reduced.

**1607.11.3.1 Landscaped roofs.** ((Where roofs are to be landscaped, the)) The uniform design live load in ((the)) unoccupied landscaped areas on roofs shall be 20 psf (0.958 kN/m<sup>2</sup>). The weight of ((the)) all landscaping materials shall be considered as dead load and shall be computed on the basis of saturation of the soil.

**1607.11.4 Awnings and canopies.** Awnings and canopies shall be designed for uniform live loads as required in Table 1607.1 as well as for snow loads and wind loads as specified in Sections 1608 and 1609.

\*\*\*

## SECTION 1608

### SNOW LOADS

**1608.1 General.** Design snow loads shall be determined in accordance with Chapter 7 of ASCE 7, but the design roof load shall not be less than that determined by Section 1607. Roofs shall be designed for a snow load of at least 25 psf (1200 Pa).

\*\*\*

## **SECTION 1609**

### **WIND LOADS**

**1609.1 Applications.** Buildings, structures and parts thereof shall be designed to withstand the minimum wind loads prescribed herein. Decreases in wind loads shall not be made for the effect of shielding by other structures.

**1609.1.1 Determination of wind loads.** Wind loads on every building or structure shall be determined in accordance with Chapter 6 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. The type of opening protection required, the basic wind speed and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

#### **Exceptions:**

1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of the AF&PA WFCM.

3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230.

4. Designs using NAAMM FP 1001.

[W] 5. Designs using TIA-222 for antenna-supporting structures and antennas. In section 2.6.6.2, the extent of Topographic Category 2, escarpments, shall extend 16 times the height of the escarpment.

6. Wind tunnel tests in accordance with Section 6.6 of ASCE 7, subject to the limitations in Section 1609.1.1.2.

7. Designs using SEAW RSM-03 *Structural Engineers Association of Washington Rapid Solution Methodology, Handbook for Wind Design.*

**1609.1.1.1 Applicability.** The provisions of ICC 600 are applicable only to buildings located within Exposure B or C as defined in Section 1609.4. The provisions of ICC 600, AF&PA WFCM and AISI S230 shall not apply to buildings sited on the upper half of an isolated hill, ridge or escarpment meeting the following conditions:

1. The hill, ridge or escarpment is 60 feet (18 288 mm) or higher if located in Exposure B or 30 feet (9144 mm) or higher if located in Exposure C;
2. The maximum average slope of the hill exceeds 10 percent; and
3. The hill, ridge or escarpment is unobstructed upwind by other such topographic features for a distance from the high point of 50 times the height of the hill or 1 mile (1.61 km), whichever is greater.

**1609.1.1.2 Wind tunnel test limitations.** The lower limit on pressures for main wind-force-resisting systems and components and cladding shall be in accordance with Sections 1609.1.1.2.1 and 1609.1.1.2.2.

**1609.1.1.2.1 Lower limits on main wind-force-resisting system.** Base overturning moments determined from wind tunnel testing shall be limited to not less than 80 percent of the design base overturning moments determined in accordance with Section 6.5 of ASCE 7, unless specific testing is performed that demonstrates it is the aerodynamic coefficient of the building, rather than shielding from other structures, that is responsible for the lower values. The 80-percent limit shall be permitted to be adjusted by the ratio of the frame load at critical wind directions as determined from wind tunnel testing without specific adjacent buildings, but including appropriate upwind roughness, to that determined in Section 6.5 of ASCE 7.

**1609.1.1.2.2 Lower limits on components and cladding.** The design pressures for components and cladding on walls or roofs shall be selected as the greater of the wind tunnel test results or 80 percent of the pressure obtained for Zone 4 for walls and Zone 1 for roofs as determined in Section 6.5 of ASCE 7, unless specific testing is performed that demonstrates it is the aerodynamic coefficient of the building, rather than shielding from nearby structures, that is responsible for the lower values. Alternatively, limited tests at a few wind directions without specific adjacent buildings, but in the presence of an appropriate upwind roughness, shall be permitted to be used to demonstrate that the lower pressures are due to the shape of the building and not to shielding.



**1609.1.2 Protection of openings.** In *wind-borne debris regions*, glazing in buildings shall be impact resistant or protected with an impact-resistant covering meeting the requirements of an *approved* impact-resistant standard or ASTM E 1996 and ASTM E 1886 referenced herein as follows:

1. Glazed openings located within 30 feet (9144 mm) of grade shall meet the requirements of the large missile test of ASTM E 1996.
2. Glazed openings located more than 30 feet (9144 mm) above grade shall meet the provisions of the small missile test of ASTM E 1996.

**Exceptions:**

1. Wood structural panels with a minimum thickness of 7/16 inch (11.1 mm) and maximum panel span of 8 feet (2438 mm) shall be permitted for opening protection in one- and two-story buildings classified as Group R-3 (~~or R-4~~) occupancy. Panels shall be precut so that they shall be attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be predrilled as required for the anchorage method and shall be secured with the attachment hardware provided. Attachments shall be designed to resist the components and cladding loads determined in accordance with the provisions of ASCE 7, with corrosion-resistant attachment hardware provided and anchors permanently installed on the building. Attachment in accordance with Table 1609.1.2 with corrosion-resistant attachment hardware provided and anchors permanently installed on the building is permitted for buildings with a mean roof height of 45 feet (13 716 mm) or less where wind speeds do not exceed 140 mph (63 m/s).

2. Glazing in *Occupancy Category* I buildings as defined in Section 1604.5, including greenhouses that are occupied for growing plants on a production or research basis, without public access shall be permitted to be unprotected.

3. Glazing in *Occupancy Category* II, III or IV buildings located over 60 feet (18 288 mm) above the ground and over 30 feet (9144 mm) above aggregate surface roofs located within 1,500 feet (458 m) of the building shall be permitted to be unprotected.

**1609.1.2.1 Louvers.** Louvers protecting intake and exhaust ventilation ducts not assumed to be open that are located within 30 feet (9144 mm) of grade shall meet requirements of an *approved* impact-resisting standard or the large missile test of ASTM E 1996.

**1609.1.2.2 Garage doors.** Garage door glazed opening protection for wind-borne debris shall meet the requirements of an *approved* impact-resisting standard or ANSI/DASMA 115.

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## SECTION 1612

### FLOOD LOADS

\*\*\*

**1612.3 Establishment of flood hazard areas.** ~~((To establish flood hazard areas, the applicable governing authority shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled "The Flood Insurance Study for [INSERT NAME OF JURISDICTION]," dated [INSERT DATE OF ISSUANCE], as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway~~

1 ~~Map (FBFM) and related supporting data along with any revisions thereto.~~) The ((adopted))  
2 flood hazard map and supporting data adopted in SMC 25.06.050 are hereby adopted by  
3 reference and declared to be part of this section.

4 **1612.3.1 Design flood elevations.** Where design flood elevations are not included in the *flood*  
5 *hazard areas* established in Section 1612.3, or where floodways are not designated, the *building*  
6 *official* is authorized to require the applicant to:

- 7
- 8 1. Obtain and reasonably utilize any design flood elevation and floodway data available from a  
9 federal, state or other source; or
  - 10 2. Determine the design flood elevation and/or floodway in accordance with accepted hydrologic  
11 and hydraulic engineering practices used to define special flood hazard areas. Determinations  
12 shall be undertaken by a *registered design professional* who shall document that the technical  
13 methods used reflect currently accepted engineering practice.

14

15 **1612.3.2 Determination of impacts.** In riverine *flood hazard areas* where design flood  
16 elevations are specified but floodways have not been designated, the applicant shall provide a  
17 floodway analysis that demonstrates that the proposed work will not increase the design flood  
18 elevation more than 1 foot (305 mm) at any point within the jurisdiction of the applicable  
19 governing authority.

20 \*\*\*

21

22

23 **SECTION 1613**

24 **EARTHQUAKE LOADS**

25

26

**1613.1 Scope.** Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7, excluding Chapter 14 and Appendix 11A. The *seismic design category* for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7.

**Exceptions:**

1. Detached one- and two-family dwellings, assigned to *Seismic Design Category* A, B or C, or located where the mapped short-period spectral response acceleration, *SS*, is less than 0.4 g.
2. The seismic-force-resisting system of wood-frame buildings that conform to the provisions of Section 2308 are not required to be analyzed as specified in this section.
3. Agricultural storage structures intended only for incidental human occupancy.
4. Structures that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic structures, buried utility lines and their appurtenances and nuclear reactors.

**1613.1.1 Predesign Conference.** At least 60 days prior to application, the applicant shall arrange a predesign conference with the structural engineer of record and the building official to review the proposed building structural system when it is not defined in Table 12.2-1 in ASCE 7 or when an alternate procedure is used under the provisions in Section 104. 4 or 104. 5. The purpose of the meeting is to obtain conceptual approval from the building official of the proposed structural system and to allow for design based upon the latest state of the art.

\*\*\*

Section 18. The following sections of Chapter 17 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 17

### STRUCTURAL TESTS AND SPECIAL INSPECTIONS

\*\*\*

#### SECTION 1702

#### DEFINITIONS

**1702.1 General.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**APPROVED AGENCY.** An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been *approved*.

**APPROVED FABRICATOR.** An established and qualified person, firm or corporation *approved* by the *building official* pursuant to Chapter 17 of this code.

**CERTIFICATE OF COMPLIANCE.** A certificate stating that materials and products meet specified standards or that work was done in compliance with *approved construction documents*.

**DESIGNATED SEISMIC SYSTEM.** Those architectural, electrical and mechanical systems and their components that require design in accordance with Chapter 13 of ASCE 7 and for which the component importance factor, *I<sub>p</sub>*, is greater than 1 in accordance with Section 13.1.3 of ASCE 7.

**FABRICATED ITEM.** Structural, load-bearing or lateral load-resisting assemblies consisting of materials assembled prior to installation in a building or structure, or subjected to operations such as heat treatment, thermal cutting, cold working or reforming after manufacture and prior to installation in a building or structure. Materials produced in accordance with standard specifications referenced by this code, such as rolled structural steel shapes, steel-reinforcing bars, masonry units, and wood structural panels or in accordance with a standard, listed in Chapter 35, which provides requirements for quality control done under the supervision of a third-party quality control agency shall not be considered “fabricated items.”

**INSPECTION CERTIFICATE.** An identification applied on a product by an *approved agency* containing the name of the manufacturer, the function and performance characteristics, and the name and identification of an *approved agency* that indicates that the product or material has been inspected and evaluated by an *approved agency* (see Section 1703.5 and “*Label*,” “Manufacturer’s designation” and “*Mark*”).

**INTUMESCENT FIRE-RESISTANT COATINGS.** Thin film liquid mixture applied to substrates by brush, roller, spray or trowel which expands into a protective foamed layer to provide fire-resistant protection of the substrates when exposed to flame or intense heat.

**MAIN WINDFORCE-RESISTING SYSTEM.** An assemblage of structural elements assigned to provide support and stability for the overall structure. The system generally receives wind loading from more than one surface.

**MASTIC FIRE-RESISTANT COATINGS.** Liquid mixture applied to a substrate by brush, roller, spray or trowel that provides fire-resistant protection of a substrate when exposed to flame or intense heat.

**[W] SMALL BUSINESS.** Any business entity (including a sole proprietorship, corporation, partnership or other legal entity) which is owned and operated independently from all other businesses, which has the purpose of making a profit, and which has 50 or fewer employees, or which has a million dollars or less per year in gross sales, of window and door products.

**SPECIAL INSPECTION.** Inspection as herein required of the materials, installation, fabrication, erection or placement of components and connections requiring special expertise to ensure compliance with *approved construction documents* and referenced standards (see Section 1704).

**SPECIAL INSPECTION, CONTINUOUS.** The full-time observation of work requiring *special inspection* by an *approved* special inspector who is present in the area where the work is being performed.

**SPECIAL INSPECTION, PERIODIC.** The part-time or intermittent observation of work requiring *special inspection* by an *approved* special inspector who is present in the area where the work has been or is being performed and at the completion of the work.

**SPRAYED FIRE-RESISTANT MATERIALS.** Cementitious or fibrous materials that are sprayed to provide fire-resistant protection of the substrates.

**STRUCTURAL OBSERVATION.** The visual observation of the structural system by a *registered design professional* for general conformance to the *approved construction documents*. Structural observation does not include or waive the responsibility for the inspection required by Section 110, 1704 or other sections of this code.

## **SECTION 1703**

### **APPROVALS**

**1703.1 Approved agency.** Whenever tests or certification of any material or fabricated assembly are required by this code, the tests or certification shall be made by an agency approved by the building official to conduct the tests or provide the certification. The building official is authorized to establish rules and regulations setting forth conditions and provisions for approval of agencies and for the conduct of any agency so approved. An approved agency shall provide all information as necessary for the building official to determine that the agency meets the applicable requirements. The building official is authorized to suspend or revoke approval of an agency upon evidence of failure of the agency to properly conduct any test, certify any material, or to perform any inspection in a manner required by this code pursuant to Section 1703.8.

**1703.1.1 Independence.** An *approved agency* shall be objective, competent and independent from the contractor responsible for the work being inspected. The agency shall also disclose possible conflicts of interest so that objectivity can be confirmed.

**1703.1.2 Equipment.** An *approved agency* shall have adequate equipment to perform required tests. The equipment shall be periodically calibrated.



1 **1703.1.3 Personnel.** An *approved agency* shall employ experienced personnel educated in  
2 conducting, supervising and evaluating tests and/or inspections. Unless otherwise approved by  
3 the building official, all special inspectors shall be registered with the Washington Association of  
4 Building Officials. A registered civil or structural engineer or registered architect is permitted to  
5 serve as a special inspector when approved by the building official.

7 **1703.1.4 Approval of tests and inspections.** Special inspectors and inspection and testing  
8 agencies shall not conduct any inspections or tests until the building official has authorized the  
9 inspection or test in writing. The special inspectors or inspection/testing agency approved by the  
10 building official shall not be changed without obtaining prior approval of the registered design  
11 professional in responsible charge or the owner, and the building official.

13 ~~((1703.2 Written approval. Any material, appliance, equipment, system or method of~~  
14 ~~construction meeting the requirements of this code shall be approved in writing after satisfactory~~  
15 ~~completion of the required tests and submission of required test reports.~~

17 ~~**1703.3 Approved record.** For any material, appliance, equipment, system or method of~~  
18 ~~construction that has been approved, a record of such approval, including the conditions and~~  
19 ~~limitations of the approval, shall be kept on file in the building official's office and shall be open~~  
20 ~~to public inspection at appropriate times.))~~

21 **1703.4 Performance.** Specific information consisting of test reports conducted by an *approved*  
22 testing agency in accordance with standards referenced in Chapter 35, or other such information  
23 as necessary, shall be provided for the *building official* to determine that the material meets the  
24 applicable code requirements.  
25

1 **1703.4.1 Research and investigation.** ~~((Sufficient))~~ If approved by the building official,  
2 technical data shall be submitted to the *building official* to substantiate the proposed use of any  
3 material or assembly. If it is determined that the evidence submitted is satisfactory proof of  
4 performance for the use intended, the *building official* shall approve the use of the material or  
5 assembly subject to the requirements of this code. The costs, reports and investigations required  
6 under these provisions shall be paid by the applicant.

7  
8 **1703.4.2 Research reports.** Supporting data, where necessary to assist in the approval of  
9 materials or assemblies not specifically provided for in this code, shall consist of valid research  
10 reports from *approved* sources.

11 \*\*\*

12  
13 **1703.7 Preconstruction conference.** For projects requiring special inspection, the owner or the  
14 owner's agent shall arrange a conference with the project contractor, the design team, the special  
15 inspection agency and the building official prior to commencing work on any portion of  
16 construction requiring special inspection. The purpose of the conference is to identify and clarify  
17 the special inspection requirements of the project.

18  
19 **1703.8 Revocation of registration or approval to inspect.** The building official is authorized to  
20 revoke, suspend or refuse to renew registration or approval of inspection agencies, special  
21 inspectors and nonregistered special inspectors, including inspectors registered by the  
22 Washington Association of Building Officials. This may be done upon evidence submitted to the  
23 building official of incompetence, of willful or negligent failure to observe or report violations of  
24 the *Seattle Building Code* or of any other failure to perform properly and effectively the duties  
25

1 required by this code or other duties assumed by an inspection agency or nonregistered special  
2 inspector. The inspection agency or special inspector shall be notified in writing of the building  
3 official's decision to revoke, suspend or refuse to renew registration or approval. The notice shall  
4 be served in the manner set forth in RCW 4.28.080 for service of a summons or sent by first class  
5 mail. For purposes of this section, service is complete at the time of personal service, or if  
6 mailed, three days after the date of mailing. When the last day of the period so computed is a  
7 Saturday, Sunday or City holiday, the period runs until 5 p.m. on the next business day.

9 **1703.8.1 Review by the building official for revocation of registration.**

10 **1703.8.1.1** Any person aggrieved by a notice of revocation may obtain a review by making a  
11 request in writing to the building official within three business days of the date of service of the  
12 notice of revocation. The review shall occur within five business days after receipt by the  
13 building official of the request for review. Any person aggrieved by or interested in the notice of  
14 revocation may submit additional information to the building official for consideration as part of  
15 the review at any time prior to the review.

16 **1703.8.1.2** The review will be made by a representative of the building official who will review  
17 all additional information received and may also request a site visit. After the review, the  
18 building official may:

- 19 1. Sustain the notice of revocation and set or modify the date the revocation will take effect;  
20 2. Withdraw the notice of revocation;  
21 3. Modify the notice of revocation and set or modify the date the revocation will take effect; or  
22 4. Continue the review to a date certain for receipt of additional information.  
23  
24  
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1 1703.8.1.3 The building official shall issue an order of the building official containing the  
2 decision within ten days after the review and shall cause the same to be sent by first class mail to  
3 the person or persons requesting the review, any other person on whom the notice of revocation  
4 was served and any other person who requested a  
5 copy before issuance of the order of the building official. The order of the building official is the  
6 final order of the  
7 City and the City and all parties shall be bound by the order.

#### SECTION 1704

#### SPECIAL INSPECTIONS

11 **1704.1 General.** Where application is made for construction as described in this section, the  
12 owner or the *registered design professional in responsible charge* acting as the owner's agent  
13 shall employ one or more *approved agencies* to perform inspections during construction on the  
14 types of work listed under Section 1704. The building official may require additional special  
15 inspectors if the building official determines they are needed due to the magnitude or complexity  
16 of the job. These inspections are in addition to the inspections identified in Section 110. The  
17 special inspector shall be a qualified person who shall demonstrate competence, to the  
18 satisfaction of the *building official*, for the inspection of the particular type of construction or  
19 operation requiring *special inspection*. The *registered design professional in responsible charge*  
20 and engineers of record involved in the design of the project are permitted to act as the *approved*  
21 *agency* and their personnel are permitted to act as the special inspector for the work designed by  
22 them, provided those personnel meet the qualification requirements of this section to the  
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24  
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1 satisfaction of the *building official*. Unless otherwise approved by the building official, all  
2 special inspectors shall be registered with the Washington Association of Building Officials. The  
3 special inspector shall provide written documentation to the building official demonstrating his  
4 or her competence and relevant experience or training. Experience or training shall be considered  
5 relevant when the documented experience or training is related in complexity to the same type of  
6 *special inspection* activities for projects of similar complexity and material qualities. These  
7 qualifications are in addition to qualifications specified in other sections of this code.

8  
9 **Exceptions:**

- 10 1. *Special inspections* are not required for work of a minor nature or as warranted by conditions  
11 in the jurisdiction as *approved* by the *building official*.  
12  
13 2. *Special inspections* are not required for building components unless the design involves the  
14 practice of professional engineering or architecture as defined by applicable state statutes and  
15 regulations governing the professional registration and certification of engineers or architects.  
16  
17 3. Unless otherwise required by the *building official*, *special inspections* are not required for  
18 Group U occupancies that are accessory to a residential occupancy including, but not limited to,  
19 those listed in Section 312.1.

20 **1704.1.1 Statement of special inspections.** The applicant shall submit a statement of *special*  
21 *inspections* prepared by the *registered design professional in responsible charge* in accordance  
22 with Section 107.1 as a condition for issuance. This statement shall be in accordance with  
23 Section 1705.  
24

25 **Exceptions:**  
26  
27  
28

1 1. A statement of *special inspections* is not required for structures designed and constructed in  
2 accordance with the conventional construction provisions of Section 2308.

3 2. The statement of *special inspections* is permitted to be prepared by a qualified person  
4 *approved* by the *building official* for construction not designed by a *registered design*  
5 *professional*.

6  
7 **1704.1.2 Registration of special inspectors.**

8 **1704.1.2.1 Application for registration.** Criteria for registration of special inspectors shall be  
9 established by the building official by rule.

10 **1704.1.2.2 Issuance of certificate of registration.** If the building official is satisfied that the  
11 applicant is qualified, a Certificate of Registration or a Limited Certificate of Registration shall  
12 be issued that specifies the types of inspection the applicant has been authorized to perform.

13 Valid registration from the Washington Association of Building Officials is permitted to  
14 substitute for registration by the building official.

15  
16 **1704.1.2.3 Renewal of special inspector's registration.** A Certificate of Registration or Limited  
17 Certificate of Registration is valid for the period of time to be determined by the building official  
18 by rule. Upon application for renewal of a Certificate of Registration, the building official is  
19 permitted to re-examine the applicant to ascertain his/her fitness to perform the inspection of the  
20 type or types for which the application was made.

21  
22 **1704.1.2.4 Revocation.** Special inspectors' certifications are subject to revocation according to  
23 Section 1703.9.  
24  
25  
26

1 ~~((1704.1.2))~~ **1704.1.3 Report requirements.** ~~((Special inspectors shall keep records of~~  
2 ~~inspections. The special inspector shall furnish inspection reports to the *building official*, and to~~  
3 ~~the *registered design professional in responsible charge*. Reports shall indicate that work~~  
4 ~~inspected was or was not completed in conformance to *approved construction documents*.~~  
5 ~~Discrepancies shall be brought to the immediate attention of the contractor for correction. If they~~  
6 ~~are not corrected, the discrepancies shall be brought to the attention of the *building official* and to~~  
7 ~~the *registered design professional in responsible charge* prior to the completion of that phase of~~  
8 ~~the work. A final report documenting required *special inspections* and correction of any~~  
9 ~~discrepancies noted in the inspections shall be submitted at a point in time agreed upon prior to~~  
10 ~~the start of work by the applicant and the *building official*.)~~

13 **1704.1.3.1 Daily reports.** The registered special inspector shall immediately report all  
14 irregularities, substitution of materials and violations to the contractor for correction, then if  
15 uncorrected, to the registered design professional in responsible charge and to the building  
16 official. At the conclusion of each inspection, the registered special inspector shall submit a  
17 report to the registered design professional in responsible charge and owner relative to the  
18 portion of the work inspected, stating whether the work requiring special inspection was, to the  
19 best of his/her knowledge, in conformance with the approved plans and specifications and the  
20 applicable workmanship provisions of this code and related standards. The report shall be signed  
21 by the registered special inspector. One copy of the report shall be submitted to the building  
22 official by the approved inspection or testing agency no later than one week from the date of the  
23 inspection and shall be filed in the records of the agency's office. One copy of the report shall be

1 left at the job site by the special inspector. The special inspector shall also provide, as directed by  
2 the building official or by the registered design professional in responsible charge or owner, such  
3 other information as is required during his/her assigned employment.

4 **1704.1.3.2 Final report.** The inspection or testing agency shall submit a final signed report  
5 listing the scope of required inspection and stating whether all work requiring special inspection  
6 was, to the best of the agency's knowledge, inspected and reported as specified on construction  
7 documents.

9 **1704.1.4 Notification.** The owner, or an authorized agent, is responsible for notifying the special  
10 inspector when construction activity is scheduled that requires special inspection. If the owner  
11 designates another person to notify the special inspector, the owner retains the responsibility to  
12 assure that the special inspections are conducted and required reports submitted to the building  
13 official. The approved testing agency shall notify the building official and the registered design  
14 professional in responsible charge or owner of the commencement of inspection of a job and  
15 shall specify the type of inspection for which the special inspector has been engaged. This  
16 notification shall be made prior to commencement of inspection. The approved testing agency  
17 shall notify the building official prior to commencement of each day's inspection thereafter. The  
18 building official is permitted to require that every request for special inspection be filed at least  
19 one working day before the special inspection is desired. The request shall be made in writing or  
20 by telephone at the option of the building official.



**1704.1.5 Access to work.** It is the duty of the person requesting any special inspections required by this code to provide access to and means for proper inspection of the work for the special inspector and the building official.

**1704.1.6 Posting special inspection record.** The building official is permitted to require that work requiring special inspection not be commenced until the permit holder or the permit holder's agent posts an inspection log in a conspicuous place on the premises. The record shall be posted in a position which allows the special inspector to conveniently enter his/her identification, the date and type of inspection performed. This record shall be maintained there by the permit holder until final approval has been granted by the building official.

**1704.1.7 Responsibilities of special inspectors.**

**1704.1.7.1 General.** The special inspector is responsible for conducting all special inspections for which the special inspector was employed and notified and for carrying out the duties of a special inspector as specified in Section 1704.

**1704.1.7.2 Specific duties.** Registered special inspectors are regularly authorized deputies of the building official and are subject to all duties imposed by the building official, in addition to the following:

1. The registered special inspector shall be present during the execution of all assigned work. The registered special inspector shall report to the job sufficiently in advance of construction to become familiar with the plans and to inspect all materials to be used or concealed within the work. The special inspector shall inspect the construction, erection, placing, or other use of materials; and shall observe whether there is compliance with the approved design as to all of the

1 foregoing. During the execution of all assigned work, the registered special inspector shall not  
2 undertake or engage in any other task or occupation that interferes with the proper performance  
3 of the inspection duties.

4 2. The registered special inspector shall not approve the placing of foundation concrete or pile  
5 caps prior to the approval of the soil condition or pile driving reports by the engineer who  
6 performed the special inspection for the pile installation.

7  
8 3. The registered special inspector shall be employed only by an approved inspection or testing  
9 agency.

10 4. The registered special inspector shall not inspect work performed, or material supplied, by any  
11 contractor, subcontractor or material vendor with whom the inspector is employed.

12  
13 5. If any registered special inspector is negligent in the performance of the inspector's duties, the  
14 building official is permitted to stop the work.

15 **1704.2 Inspection of fabricators.** Where fabrication of structural load-bearing members and  
16 assemblies is being performed on the premises of a fabricator's shop, *special inspection* of the  
17 fabricated items shall be required by this section and as required elsewhere in this code.

18  
19 **1704.2.1 Fabrication and implementation procedures.** The special inspector shall verify that  
20 the fabricator maintains detailed fabrication and quality control procedures that provide a basis  
21 for inspection control of the workmanship and the fabricator's ability to conform to *approved*  
22 *construction documents* and referenced standards. The special inspector shall review the  
23 procedures for completeness and adequacy relative to the code requirements for the fabricator's  
24 scope of work.  
25  
26  
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28

**Exception:** *Special inspections* as required by Section 1704.2 shall not be required where the fabricator is *approved* in accordance with Section 1704.2.2.

**1704.2.2 Fabricator approval.** *Special inspections* required by Section 1704 are not required where the work is done on the premises of a fabricator registered and *approved* according to the provisions of this chapter to perform such work without *special inspection*. (~~Approval shall be based upon review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At completion of fabrication, the approved fabricator shall submit a certificate of compliance to the building official stating that the work was performed in accordance with the approved construction documents.~~)

**1704.2.2.1 Application for registration.** Application for registration as an approved fabricator shall be made to the building official by plants engaged in the manufacture of:

1. Prestressed or precast concrete structural products, and premixed concrete.
2. Unit masonry products.
3. Engineered wood products.
4. Prefabricated or assembly-line-produced metal products.
5. Other prefabricated products as the building official designates.

**1704.2.2.2 Requirements for registration.** The building official is authorized to examine manufacturing plants that submit applications for registration and shall issue certificates of registration if the plants have complied with the following requirements:

1 1. Develop and submit a detailed fabrication procedural manual reflecting key quality control  
2 procedures that will provide a basis for inspection control of the fabricating process.

3 2. Have the fabricator's quality control capabilities, operation of equipment and personnel as  
4 outlined in the fabrication procedural manual verified by an approved inspection or quality  
5 control agency.

6 3. Agree to have periodic plant inspections conducted by an approved inspection or quality  
7 control agency to monitor the effectiveness of the quality control program and to allow  
8 unannounced audits of the plant by the building official.

9 4. Agree to require the inspection or quality control agency to notify the building official in  
10 writing of any changes to the procedural manual.

11 5. Agree to submit a Certificate of Compliance, if required by the building official, that work was  
12 performed in accordance with the approved plans and specifications to the building official and  
13 to the registered design professional in responsible charge.

14 6. Pay a registration fee determined by the building official in accordance with provisions of the  
15 Fee Subtitle.

16 **1704.2.2.3 Review by the building official for denial of registration of fabricators.**

17 **1704.2.2.3.1** The fabricator may request in writing a review before the building official to  
18 reconsider the decision to deny registration. The request shall be filed in writing with the  
19 building official.

1 The review shall occur no later than 15 working days from receipt of the written request. After  
2 the review, the building official shall issue a final decision in writing, sustaining, modifying or  
3 withdrawing the initial decision.

4 **1704.2.2.3.2** The review will be made by a representative of the building official who will review  
5 all additional information received and may also request a site visit. After the review, the  
6 building official may:

7 1. Sustain the decision;

8 2. Modify the decision; or

9 3. Continue the review to a date certain.

10 **1704.2.2.3.3** The building official shall issue a decision within ten days after the review and shall  
11 send it by first class mail to the person or persons requesting the review and any other person  
12 who requested a copy. The order of the building official is the final order of the City and the City  
13 and all parties shall be bound by the order.

14 **1704.2.2.4 Renewal of registration.** Registration of approved fabricators is valid for one year  
15 from the date of issuance and is subject to renewal annually. Registration may be renewed upon  
16 application, contingent on compliance with quality control procedures during the past year and  
17 payment of a fee in accordance with provisions of the Fee Subtitle. The building official is  
18 authorized to revoke registration for cause.

19 **1704.2.2.5 Fees.** Fees for examination and registration of special inspectors are determined by  
20 the building official in accordance with the Fee Subtitle.

**1704.3 Steel construction.** The *special inspections* for steel elements of buildings and structures shall be as required by Section 1704.3 and Table 1704.3.

**Exceptions:**

1. *Special inspection* of the steel fabrication process shall not be required where the fabricator does not perform any welding, thermal cutting or heating operation of any kind as part of the fabrication process. ~~((In such cases, the fabricator shall be required to submit a detailed procedure for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, grade and mill test reports for the main stress-carrying elements are capable of being determined.))~~

2. The special inspector need not be continuously present during welding of the following items, provided the materials, welding procedures and qualifications of welders are verified prior to the start of the work; periodic inspections are made of the work in progress and a visual inspection of all welds is made prior to completion or prior to shipment of shop welding.

2.1. Single-pass fillet welds not exceeding 5/16 inch (7.9 mm) in size.

2.2. Floor and roof deck welding.

2.3. Welded studs when used for structural diaphragm.

2.4. Welded sheet steel for cold-formed steel members.

2.5. Welding of stairs and railing systems.

3. Welding done in an approved fabricator's shop, e.g., AISC-certified or equivalent.

1 **1704.3.1.1 Structural steel.** Welding inspection and welding inspector qualification for  
2 structural steel shall be in accordance with AWS D1.1 and AWS D1.8/D1.8M.

3 **1704.3.1.2 Cold-formed steel.** Welding inspection and welding inspector qualification for cold-  
4 formed steel floor and roof decks shall be in accordance with AWS D1.3.

5 **1704.3.1.3 Reinforcing steel.** Welding inspection and welding inspector qualification for  
6 reinforcing steel shall be in accordance with AWS D1.4 and ACI 318.

7  
8 **1704.3.2 Details.** The special inspector shall perform an inspection of the steel frame to verify  
9 compliance with the details shown on the *approved construction documents*, such as bracing,  
10 stiffening, member locations and proper application of joint details at each connection.

11  
12 **1704.3.3 High-strength bolts.** Installation of high-strength bolts shall be inspected in accordance  
13 with AISC 360.

14 **1704.3.3.1 General.** While the work is in progress, the special inspector shall determine that the  
15 requirements for bolts, nuts, washers and paint; bolted parts and installation and tightening in  
16 such standards are met. For bolts requiring pretensioning, the special inspector shall observe the  
17 preinstallation testing and calibration procedures when such procedures are required by the  
18 installation method or by project plans or specifications; determine that all plies of connected  
19 materials have been drawn together and properly snugged and monitor the installation of bolts to  
20 verify that the selected procedure for installation is properly used to tighten bolts. For joints  
21 required to be tightened only to the snug-tight condition, the special inspector need only verify  
22 that the connected materials have been drawn together and properly snugged.  
23  
24  
25  
26  
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**1704.3.3.2 Periodic monitoring.** Monitoring of bolt installation for pretensioning is permitted to be performed on a periodic basis when using the turn-of-nut method with matchmarking techniques, the direct tension indicator method or the alternate design fastener (twist-off bolt) method. Joints designated as snug tight need be inspected only on a periodic basis.

**1704.3.3.3 Continuous monitoring.** Monitoring of bolt installation for pretensioning using the calibrated wrench method or the turn-of-nut method without matchmarking shall be performed on a continuous basis.

**1704.3.4 Cold-formed steel trusses spanning 60 feet or greater.** Where a cold-formed steel truss clear span is 60 feet (18 288 mm) or greater, the special inspector shall verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the *approved* truss submittal package.

### TABLE 1704.3

#### REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTIN UOUS	PERI ODIC	REFERENCED STANDARD <sup>a</sup>	IBC REFERE NCE
1. Material verification of high-strength bolts, nuts and washers:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	—	X	AISC 360, Section A3.3 and applicable ASTM material standards	



1				
2	b.Manufacturer's certificate	—	X	—
3	of compliance			
4	required.			
5				
6	2. Inspection of high-strength bolting:			
7	a.Snug-tight joints.	—	X	AISC 360, Section
8				M2.5
9	b.Pretensioned and slip-	—	X	
10	critical joints using turn-of-			
11	nut with matchmarking,			
12	twist-off bolt or direct			
13	tension indicator methods of			
14	installation.			
15				
16				
17	c.Pretensioned and slip-critical	X	—	
18	joints using turn-of-nut without			
19	matchmarking or calibrated wrench			
20	methods of installation.			
21				
22	3. Material verification of structural steel and cold-formed steel deck:			
23	a.For structural steel,	—	X	AISC 360, Section
24	identification markings to			M5.5
25	conform to AISC 360.			
26				

1	b. For other steel,	—	X	Applicable ASTM	
2	identification markings to			material standards	
3	conform to ASTM standards				
4	specified in the approved				
5	construction documents.				
6					
7	c.Manufacturer's certified	—	X		
8	test reports.				
9	4. Material verification of weld filler materials:				
10					
11	a.Identification markings to	—	X	AISC 360, Section	—
12	conform to AWS			A3.5 and applicable	
13	specification in the			AWS A5 documents	
14	approved construction				
15	documents.				
16					
17	b.Manufacturer's certificate	—	X	—	—
18	of compliance required				
19	5. Inspection of welding:				
20					
21	a.Structural steel and cold-formed steel deck:				
22	1) Complete and partial joint	X	—	AWS D1.1	1704.3.1
23	penetration groove welds.				
24	2) Multipass fillet welds.	X	—		
25					
26					
27					
28					

1	3) Single-pass fillet welds	—	X	—	
2	≥5/16"				
3	4) Plug and slot welds.	X	—		
4	5) Single-pass fillet welds	—	X		
5	≤5/16"				
6					
7	6) Floor and roof deck	—	X	AWS D1.3	
8	welds.				
9	b.Reinforcing steel:				
10					
11	1) Verification of	—	X	AWS D1.4 ACI 318:	—
12	weldability of reinforcing			Section 3.5.2	
13	steel other than ASTM A				
14	706				
15	2) Reinforcing steel resisting	X	—		
16	flexural and axial forces in				
17	intermediate and special				
18	moment frames, and				
19	boundary elements of				
20	special structural walls of				
21	concrete and shear				
22	reinforcement.				
23					
24					
25					
26					
27					
28					

1	3) Shear reinforcement.	X	—		
2	4) Other reinforcing steel.	—	X		
3	c. Cold-formed steel framing	—	X	AWS D1.3	1704.3.1
4					& 1707.4
5					
6	d. Seismic force resisting systems	—	X	AWS D1.8	1704.3.1
7	6. Inspection of steel frame joint details for compliance:				
8	a. Details such as bracing	—	X		
9	and stiffening.				
10					
11	b. Member locations.	—	X	—	1704.3.2
12	c. Application of joint	—	X		
13	details at each connection.				
14					

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1707.1, Special inspection for seismic resistance.

**1704.4 Concrete construction.** The *special inspections* and verifications for concrete construction shall be as required by this section and Table 1704.4.

**Exception:** *Special inspections* shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less above *grade plane* that are fully supported on earth or rock.

2. Continuous concrete footings supporting walls of buildings three stories or less above *grade plane* that are fully supported on earth or rock where:

2.1. The footings support walls of light-frame construction;

2.2. The footings are designed in accordance with Table 1809.7; or

2.3. The structural design of the footing is based on a specified compressive strength,  $f'_c$ , no greater than 2,500 pounds per square inch (psi) (17.2 MPa), regardless of the compressive strength specified in the *construction documents* or used in the footing construction.

3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 MPa).

4. Concrete foundation walls constructed in accordance with Table 1807.1.6.2.

5. Concrete patios, driveways and sidewalks, on grade.

**1704.4.1 Materials.** In the absence of sufficient data or documentation providing evidence of conformance to quality standards for materials in Chapter 3 of ACI 318, the building official shall require testing of materials in accordance with the appropriate standards and criteria for the material in Chapter 3 of ACI 318. Weldability of reinforcement, except that which conforms to ASTM A 706, shall be determined in accordance with the requirements of Section 3.5.2 of ACI 318.

**1704.4.2 Inspection during concrete mixing.** Special inspections are required during mixing of concrete under one of the following circumstances:

1. Concrete mixes prepared in a batch plant that is not certified by the City of Seattle;

2. All structural lightweight concrete mixes;

3. Concrete mixes with  $f'_c$  greater than 6000 psi (41.4Mpa);

4. Concrete mixes containing alternative materials addressed in Section 1704.4.1; or

5. Other unusual circumstances as determined by the building official.

**Exception:** Inspection during the mixing of concrete is not required if the proportions of ingredients are established in accordance with Table 1905.2 or if a mix has been granted continuous approval by the building official.

**TABLE 1704.4**

**REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION**

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD <sup>a</sup>	IBC REFERENCE
1. Inspection of reinforcing steel, including prestressing tendons, and placement.	—	X	ACI 318: 3.5, 7.1-7.7	1913.4
2. Inspection of reinforcing steel welding in accordance with Table 1704.3, Item 5b.	—	—	AWS D1.4 ACI 318: 3.5.2	—
3. Inspection of bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased or where strength design is used.	X	—	ACI 318: 8.1.3, 21.2.8	1911.5, 1912.1

1				ACI 318:	
2	4. Inspection of anchors installed	—	X	3.8.6, 8.1.3,	1912.1
3	in hardened concrete.			21.2.8	
4					
5	5. Verifying use of required	—	X	ACI 318: Ch.	1904.2.2,
6	design mix.			4, 5.2-5.4	1913.2,
7					1913.3
8	6. At the time fresh concrete is				
9	sampled to fabricate specimens			ASTM C 172	
10	for strength tests, perform slump			ASTM C 31	
11	and air content tests, and	X	—	ACI 318: 5.6,	1913.1
12	determine the temperature of the			5.8	
13	concrete.				
14					
15	7. Inspection of concrete and				1913.6,
16	shotcrete placement for proper	X	—	ACI 318: 5.9,	1913.7,
17	application techniques.			5.10	1913.8
18					
19	8. Inspection for maintenance of				
20	specified curing temperature and	—	X	ACI 318:	1913.9
21	techniques.			5.11-5.13	
22					
23	9. Inspection of prestressed	X		ACI 318:	
24	concrete: a.Application of	X	—	18.20 ACI	—
25	prestressing forces. b.Grouting of			318: 18.18.4	
26					

bonded prestressing tendons in the seismic-force-resisting system.				
10. Erection of precast concrete members.	—	X	ACI 318: Ch. 16	—
11. Verification of in-situ concrete strength, prior to stressing of tendons in posttensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 6.2	—
12. Inspect formwork for <u>general</u> <u>conformity to approved plans for</u> <u>size and shape</u> ( <del>(location and</del> <del>dimensions))</del> of the concrete member being formed.	—	X	ACI 318: 6.1.1	—

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1707.1, Special inspection for seismic resistance.

\*\*\*

**1704.12 Sprayed fire-resistant materials.** *Special inspections* for sprayed fire-resistant materials applied to floor, roof and wall assemblies and structural members shall be in



1 accordance with Sections 1704.12.1 through 1704.12.6. *Special inspections* shall be based on the  
2 fire-resistance design as designated in the *approved construction documents*. The tests set forth  
3 in this section shall be based on samplings from specific floor, roof and wall assemblies and  
4 structural members. *Special inspections* shall be performed after the rough installation of  
5 electrical, automatic sprinkler, mechanical and plumbing systems and suspension systems for  
6 ceilings, where applicable.  
7

8 **1704.12.1 Physical and visual tests.** The *special inspections* shall include the following tests  
9 and observations to demonstrate compliance with the listing and the fire-resistance rating:

- 10 1. Condition of substrates.
- 11 2. Thickness of application.
- 12 3. Density in pounds per cubic foot (kg/m<sup>3</sup>).
- 13 4. Bond strength adhesion/cohesion.
- 14 5. Condition of finished application.

16 **1704.12.2 Structural member surface conditions.** The surfaces shall be prepared in accordance  
17 with the *approved* fire-resistance design and the written instructions of *approved* manufacturers.

18 The prepared surface of structural members to be sprayed shall be inspected before the  
19 application of the sprayed fire-resistant material.  
20

21 **1704.12.3 Application.** The substrate shall have a minimum ambient temperature before and  
22 after application as specified in the written instructions of *approved* manufacturers. ((The area  
23 for application shall be ventilated during and after application as required by the written  
24 instructions of *approved* manufacturers.))  
25  
26  
27  
28

**1704.12.4 Thickness.** No more than 10 percent of the thickness measurements of the sprayed fire-resistant materials applied to floor, roof and wall assemblies and structural members shall be less than the thickness required by the *approved* fire-resistance design, but in no case less than the minimum allowable thickness required by Section 1704.12.4.1.

**1704.12.4.1 Minimum allowable thickness.** For design thicknesses 1 inch (25 mm) or greater, the minimum allowable individual thickness shall be the design thickness minus 1/4 inch (6.4 mm). For design thicknesses less than 1 inch (25 mm), the minimum allowable individual thickness shall be the design thickness minus 25 percent. Thickness shall be determined in accordance with ASTM E 605. Samples of the sprayed fire-resistant materials shall be selected in accordance with Sections 1704.12.4.2 and 1704.12.4.3.

**1704.12.4.2 Floor, roof and wall assemblies.** The thickness of the sprayed fire-resistant material applied to floor, roof and wall assemblies shall be determined in accordance with ASTM E 605, making not less than four measurements for each 1,000 square feet (93 m<sup>2</sup>) of the sprayed area in each *story* or portion thereof.

**1704.12.4.2.1 Cellular decks.** Thickness measurements shall be selected from a square area, 12 inches by 12 inches (305 mm by 305 mm) in size. A minimum of four measurements shall be made, located symmetrically within the square area.

**1704.12.4.2.2 Fluted decks.** Thickness measurements shall be selected from a square area, 12 inches by 12 inches (305 mm by 305 mm) in size. A minimum of four measurements shall be made, located symmetrically within the square area, including one each of the following: valley, crest and sides. The average of the measurements shall be reported.

**1704.12.4.3 Structural members.** The thickness of the sprayed fire-resistant material applied to structural members shall be determined in accordance with ASTM E 605. Thickness testing shall be performed on not less than 25 percent of the structural members on each floor.

**1704.12.4.3.1 Beams and girders.** At beams and girders thickness measurements shall be made at nine locations around the beam or girder at each end of a 12-inch (305 mm) length.

**1704.12.4.3.2 Joists and trusses.** At joists and trusses, thickness measurements shall be made at seven locations around the joist or truss at each end of a 12-inch (305 mm) length.

**1704.12.4.3.3 Wide-flanged columns.** At wide-flanged columns, thickness measurements shall be made at 12 locations around the column at each end of a 12-inch (305 mm) length.

**1704.12.4.3.4 Hollow structural section and pipe columns.** At hollow structural section and pipe columns, thickness measurements shall be made at a minimum of four locations around the column at each end of a 12-inch (305 mm) length.

**1704.12.5 Density.** The density of the sprayed fire-resistant material shall not be less than the density specified in the *approved* fire-resistance design. Density of the sprayed fire-resistant material shall be determined in accordance with ASTM E 605. The test samples for determining the density of the sprayed fire-resistant materials shall be selected as follows:

1. From each floor, roof and wall assembly at the rate of not less than one sample for every 2,500 square feet (232m<sup>2</sup>) or portion thereof of the sprayed area in each *story*.
2. From beams, girders, trusses and columns at the rate of not less than one sample for each type of structural member for each 2,500 square feet (232 m<sup>2</sup>) of floor area or portion thereof in each *story*.

1 **1704.12.6 Bond strength.** The cohesive/adhesive bond strength of the cured sprayed fire-  
2 resistant material applied to floor, roof and wall assemblies and structural members shall not be  
3 less than 150 pounds per square foot (psf) (7.18 kN/m<sup>2</sup>). The cohesive/adhesive bond strength  
4 shall be determined in accordance with the field test specified inASTME 736 by testing in-place  
5 samples of the sprayed fire-resistant material selected in accordance with Sections 1704.12.6.1  
6 through 1704.12.6.3.

8 **1704.12.6.1 Floor, roof and wall assemblies.** The test samples for determining the  
9 cohesive/adhesive bond strength of the sprayed fire-resistant materials shall be selected from  
10 each floor, roof and wall assembly at the rate of not less than one sample for every 2,500 square  
11 feet (232 m<sup>2</sup>) of the sprayed area in each *story* or portion thereof.

13 **1704.12.6.2 Structural members.** The test samples for determining the cohesive/adhesive bond  
14 strength of the sprayed fire-resistant materials shall be selected from beams, girders, trusses,  
15 columns and other structural members at the rate of not less than one sample for each type of  
16 structural member for each 2,500 square feet (232 m<sup>2</sup>) of floor area or portion thereof in each  
17 *story*.

19 **1704.12.6.3 Primer, paint and encapsulant bond tests.** Bond tests to qualify a primer, paint or  
20 encapsulant shall be conducted when the sprayed fire-resistant material is applied to a primed,  
21 painted or encapsulated surface for which acceptable bond-strength performance between these  
22 coatings and the fire-resistant material has not been determined. A bonding agent *approved* by  
23 the SFRM manufacturer shall be applied to a primed, painted or encapsulated surface where the  
24 bond strengths are found to be less than required values.  
25  
26  
27  
28

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~~((1704.14 Exterior insulation and finish systems (EIFS). Special inspections shall be required for all EIFS applications.~~

**Exceptions:**

~~1. Special inspections shall not be required for EIFS applications installed over a water resistive barrier with a means of draining moisture to the exterior.~~

~~2. Special inspections shall not be required for EIFS applications installed over masonry or concrete walls.~~

~~**1704.14.1 Water resistive barrier coating.** A water resistive barrier coating complying with ASTM E 2570 requires special inspection of the water resistive barrier coating when installed over a sheathing substrate.))~~

\*\*\*

**[F] 1704.16 Special inspection for smoke control.** Smoke control systems shall be inspected and tested according to standards specified by the building official ~~((tested by a special inspector)).~~

~~((**[F] 1704.16.1 Testing scope.** The test scope shall be as follows:~~

~~1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.~~

~~2. Prior to occupancy and after sufficient completion for the purposes of pressure difference testing, flow measurements and detection and control verification.~~

~~[F] 1704.16.2 Qualifications. Special inspection agencies for smoke control shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.))~~

## SECTION 1705

### STATEMENT OF SPECIAL INSPECTIONS

\*\*\*

**1705.2 Content of statement of special inspections.** The statement of special inspections shall identify the following:

1. The materials, systems, components and work required to have *special inspection* or testing by the *building official* or by the *registered design professional* responsible for each portion of the work.
2. The type and extent of each *special inspection*, if required by the building official.
3. The type and extent of each test, if required by the building official.
4. Additional requirements for *special inspection* or testing for seismic or wind resistance as specified in Section 1705.3, 1705.4, 1707 or 1708.
5. For each type of *special inspection*, identification as to whether it will be continuous *special inspection* or periodic *special inspection*.

\*\*\*

## SECTION 1707

### SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE

\*\*\*

**1707.3 Structural wood.** Continuous special inspection is required during field gluing operations of elements of the seismic-force-resisting system. Periodic special inspection is required for nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, shear panels and hold-downs.

**Exceptions:**

1. *Special inspection* is not required for wood shearwalls, shear panels and diaphragms, including nailing, bolting, anchoring and other fastening to other components of the seismic-force-resisting system, where the fastener spacing of the sheathing is ~~((more than))~~ 4 inches (102 mm) or more on center (o.c.).
2. Special inspection is not required for Group R-3 structures.
3. Special inspection is not required in Group R-1 and R-2 structures three stories and less in height.
4. Special inspection is not required for epoxy-grouted anchor bolts in Group R-1 and R-2 buildings if fastener spacing is 4 inches (102 mm) or more on center (o.c.) and hold down capacities are less than 5,000 pounds (22.2 kN).

\*\*\*

~~((SECTION 1709~~

~~CONTRACTOR RESPONSIBILITY~~

~~**1709.1 Contractor responsibility.** Each contractor responsible for the construction of a main wind or seismic force resisting system, designated seismic system or a wind or seismic resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the *building official* and the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain acknowledgement of awareness of the special requirements contained in the statement of *special inspection*.)~~

## SECTION 1710

### STRUCTURAL OBSERVATIONS

\*\*\*

**1710.2 Structural observations for seismic resistance.** Structural observations shall be provided for those structures assigned to *Seismic Design Category* D, E or F, as determined in Section 1613, where one or more of the following conditions exist:

1. The structure is classified as *Occupancy Category* III or IV in accordance with Table 1604.5.
2. The height of the structure is greater than 75 feet (22 860 mm) above the base.
3. The structure is assigned to *Seismic Design Category* E, is classified as *Occupancy Category* I or II in accordance with Table 1604.5, and is greater than two *stories above grade plane*.
4. When so designated by the *registered design professional* responsible for the structural design.
5. The structure includes five stories of wood-frame construction.



6.((5-)) When such observation is specifically required by the *building official*.

\*\*\*

## SECTION 1715

### PRECONSTRUCTION LOAD TESTS

\*\*\*

**1715.5 Exterior window and door assemblies.** The design pressure rating of exterior windows and doors in buildings shall be determined in accordance with Section 1715.5.1 or 1715.5.2.

#### **Exceptions:**

1. Structural wind load design pressures for window units smaller than the size tested in accordance with Section 1715.5.1 or 1715.5.2 shall be permitted to be higher than the design value of the tested unit provided such higher pressures are determined by accepted engineering analysis. All components of the small unit shall be the same as the tested unit. Where such calculated design pressures are used, they shall be validated by an additional test of the window unit having the highest allowable design pressure.

[W] 2. Custom exterior windows and doors manufactured by small business are exempt from all testing requirements in Section 1715 of the *International Building Code* if they meet the applicable provisions of Chapter 24 of the *International Building Code*.

**1715.5.1 Exterior windows and doors.** Exterior windows and sliding doors shall be tested and labeled as conforming to AAMA/WDMA/CSA101/I.S.2/A440. The *label* shall state the name of the manufacturer, the *approved* labeling agency and the product designation as specified in AAMA/WDMA/CSA101/I.S.2/A440. Exterior side-hinged doors shall be tested and *labeled* as

conforming to AAMA/WDMA/CSA101/I.S.2/A440 or comply with Section 1715.5.2. Products tested and labeled as conforming to AAMA/WDMA/CSA 101/I.S.2/A440 shall not be subject to the requirements of Sections 2403.2 and 2403.3.

**1715.5.2 Exterior windows and door assemblies not provided for in Section 1715.5.1.**

Exterior window and door assemblies shall be tested in accordance with ASTM E 330. Structural performance of garage doors shall be determined in accordance with either ASTM E 330 or ANSI/DASMA 108, and shall meet the acceptance criteria of ANSI/DASMA 108. Exterior window and door assemblies containing glass shall comply with Section 2403. The design pressure for testing shall be calculated in accordance with Chapter 16. Each assembly shall be tested for 10 seconds at a load equal to 1.5 times the design pressure.

\*\*\*

Section 19. The following sections of Chapter 18 of the International Building Code, 2009 Edition, are amended as follows:

**CHAPTER 18**

**SOILS AND FOUNDATIONS**

**SECTION 1801**

**GENERAL**

**1801.1 Scope.** The provisions of this chapter shall apply to building and foundation systems.

**1801.2 Design basis.** Allowable bearing pressures, allowable stresses and design formulas provided in this chapter shall be used with the *allowable stress design* load combinations specified in Section 1605.3. The quality and design of materials used structurally in excavations

and foundations shall comply with the requirements specified in Chapters 16, 19, 21, 22 and 23 of this code. Excavations, ~~((and))~~ fills and land-disturbing activity shall also comply with Chapter 33, the Seattle Stormwater Code (*Seattle Municipal Code* Chapter 22.800), the Seattle Grading Code (*Seattle Municipal Code* Chapter 22.170), and the Regulations for Environmentally Critical Areas (*Seattle Municipal Code* Chapter 25.09) and any rules adopted and conditions imposed under any of them.

\*\*\*

## SECTION 1803

### GEOTECHNICAL INVESTIGATIONS

**1803.1 General.** Geotechnical investigations shall be conducted in accordance with Section 1803.2 and reported in accordance with Section 1803.6. Where ~~((required by the building official or where))~~ geotechnical investigations involve in-situ testing, laboratory testing or engineering calculations, such investigations shall be conducted by a *registered design professional*.

\*\*\*

**1803.5 Investigated conditions.** Geotechnical investigations shall be conducted as indicated in Sections 1803.5.1 through 1803.5.12.

**1803.5.1 Classification.** Soil materials shall be classified in accordance with ASTM D 2487.

**1803.5.2 Questionable soil.** Where the classification, strength or compressibility of the soil is in doubt or where a load-bearing value superior to that specified in this code is claimed, the *building official* shall be permitted to require that a geotechnical investigation be conducted.

**1803.5.3 Expansive soil.** In areas likely to have expansive soil, the *building official* shall require soil tests to determine where such soils do exist. Soils meeting all four of the following provisions shall be considered expansive, except that tests to show compliance with Items 1, 2 and 3 shall not be required if the test prescribed in Item 4 is conducted:

1. Plasticity index (PI) of 15 or greater, determined in accordance with ASTM D 4318.
2. More than 10 percent of the soil particles pass a No. 200 sieve (75  $\mu$ m), determined in accordance with ASTM D 422.
3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422.
4. Expansion index greater than 20, determined in accordance with ASTM D 4829.

**1803.5.4 Ground-water table.** A subsurface soil investigation shall be performed to determine whether the existing static ground-water table is above or within 5 feet (1524 mm) below the elevation of the lowest floor level where such floor is located below the finished ground level adjacent to the foundation.

**Exception:** A subsurface soil investigation to determine the location of the ground-water table shall not be required where waterproofing is provided in accordance with Section 1805.

**1803.5.5 Deep foundations.** Where deep foundations will be used, a geotechnical investigation shall be conducted and shall include all of the following, unless sufficient data upon which to base the design and installation is otherwise available:

1. Recommended deep foundation types and installed capacities.
2. Recommended center-to-center spacing of deep foundation elements.

3. Driving criteria.

4. Installation procedures.

5. Field inspection and reporting procedures (to include procedures for verification of the installed bearing capacity where required).

6. Load test requirements. 7. Suitability of deep foundation materials for the intended environment.

8. Designation of bearing stratum or strata.

9. Reductions for group action, where necessary.

**1803.5.6 Rock strata.** Where subsurface explorations at the project site indicate variations or doubtful characteristics in the structure of the rock upon which foundations are to be constructed, the building official is permitted to require a sufficient number of borings (~~((shall))~~) to be made to a depth of not less than 10 feet (3048 mm) below the level of the foundations to provide assurance of the soundness of the foundation bed and its load-bearing capacity.

**1803.5.7 Excavation near foundations.** Where excavation will remove lateral support from any foundation, an investigation shall be conducted to assess the potential consequences and address mitigation measures.

**1803.5.8 Compacted fill material.** Where shallow foundations will bear on compacted fill material more than 12 inches (305 mm) in depth, a geotechnical investigation shall be conducted and shall include all of the following:

1. Specifications for the preparation of the site prior to placement of compacted fill material.
2. Specifications for material to be used as compacted fill.

3. Test methods to be used to determine the maximum dry density and optimum moisture content of the material to be used as compacted fill.

4. Maximum allowable thickness of each lift of compacted fill material.

5. Field test method for determining the in-place dry density of the compacted fill.

6. Minimum acceptable in-place dry density expressed as a percentage of the maximum dry density determined in accordance with Item 3.

7. Number and frequency of field tests required to determine compliance with Item 6.

**1803.5.9 Controlled low-strength material (CLSM).** Where shallow foundations will bear on controlled low-strength material (CLSM), a geotechnical investigation shall be conducted and shall include all of the following:

1. Specifications for the preparation of the site prior to placement of the CLSM.

2. Specifications for the CLSM.

3. Laboratory or field test method(s) to be used to determine the compressive strength or bearing capacity of the CLSM.

4. Test methods for determining the acceptance of the CLSM in the field.

5. Number and frequency of field tests required to determine compliance with Item 4.

~~((1803.5.10 Alternate setback and clearance. Where setbacks or clearances other than those required in Section 1808.7 are desired, the building official shall be permitted to require a geotechnical investigation by a registered design professional to demonstrate that the intent of Section 1808.7 would be satisfied. Such an investigation shall include consideration of material, height of slope, slope gradient, load intensity and erosion characteristics of slope material.))~~

**1803.5.11 Seismic Design Categories C through F.** For structures assigned to *Seismic Design Category C, D, E or F* in accordance with Section 1613, and where the structure is located in an area known to be a geologic hazard area as defined in the Regulations for Environmentally Critical Areas (Seattle Municipal Code Chapter 25.09), a geotechnical investigation shall be conducted, and shall include an evaluation of all of the following potential geologic and seismic hazards:

1. Slope instability.
2. Liquefaction.
3. Differential settlement.
4. Surface displacement due to faulting or lateral spreading.

**Exception:** The building official is permitted to waive this evaluation upon receipt of the written opinion of a

geotechnical engineer that the building's foundation design adequately addresses liquefaction.

**1803.5.11.1 Slope Instability.** The potential for slope instability shall be evaluated for the earthquake ground motion specified in Chapter 16 and Section 11.4.5 of ASCE 7 using ground motion with two-thirds times 2 percent probability of exceedance in 50 years. Peak ground acceleration is also permitted to be determined based on a site-specific study taking into account soil amplification effects. If a pseudostatic stability analysis is performed, the seismic coefficient shall correspond to some fraction of the anticipated peak ground acceleration. In the absence of a code-based or site-specific evaluation of ground motion, pseudostatic stability analyses are permitted to be performed using a seismic coefficient equal to 0.2.

**1803.5.12 Seismic Design Categories D through F.** For structures assigned to *Seismic Design Category D, E or F* in accordance with Section 1613, and where the structure is located in an area known to be a geologic hazard area as defined in the Regulations for Environmentally Critical Areas (*Seattle Municipal Code* Chapter 25.09), or where basement or retaining walls in geologic hazard areas exceed 12 feet (3658 mm) in height, the geotechnical investigation required by Section 1803.5.11, shall also include:

1. The determination of lateral pressures on foundation walls and retaining walls due to earthquake motions.
2. The potential for liquefaction and soil strength loss evaluated for site peak ground accelerations, magnitudes and source characteristics consistent with the design earthquake ground motions. Peak ground acceleration shall be permitted to be determined based on a site-specific study taking into account soil amplification effects, as specified in Chapter 21 of ASCE 7, or, in the absence of such a study, peak ground accelerations shall be assumed equal to  $SDS/2.5$ , where  $SDS$  is determined in accordance with Section 1613.5.4.
3. An assessment of potential consequences of liquefaction and soil strength loss, including estimation of differential settlement, lateral movement, lateral loads on foundations, reduction in foundation soil-bearing capacity, increases in lateral pressures on retaining walls and flotation of buried structures.
4. Discussion of mitigation measures such as, but not limited to, ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to



1 accommodate anticipated displacements and forces, or any combination of these measures and  
2 how they shall be considered in the design of the structure.

3 **1803.6 Reporting.** Where geotechnical investigations are required, a written report of the  
4 investigations shall be submitted to the *building official* by the owner or authorized agent at the  
5 time of *permit* application. This geotechnical report shall include, but need not be limited to, the  
6 following information:  
7

- 8 1. A plot showing the location of the soil investigations.
- 9 2. A complete record of the soil boring and penetration test logs and soil samples.
- 10 3. A record of the soil profile.
- 11 4. Elevation of the water table, if encountered.
- 12 5. Recommendations for foundation type and design criteria, including but not limited to: bearing  
13 capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils;  
14 mitigation of the effects of liquefaction, differential settlement and varying soil strength;  
15 mitigation of the effects of slope instability; and the effects of adjacent loads.  
16
- 17 6. Expected total and differential settlement.
- 18 7. Deep foundation information in accordance with Section 1803.5.5.
- 19 8. Special design and construction provisions for foundations of structures founded on expansive  
20 soils, as necessary.
- 21 9. Compacted fill material properties and testing in accordance with Section 1803.5.8.
- 22 10. Controlled low-strength material properties and testing in accordance with Section 1803.5.9.

23 \*\*\*

## SECTION 1805

### DAMPPROOFING AND WATERPROOFING

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**1805.4 Subsoil drainage system.** Where a hydrostatic pressure condition does not exist, dampproofing shall be provided and a base shall be installed under the floor and a drain installed around the foundation perimeter. A subsoil drainage system designed and constructed in accordance with Section 1805.1.3 shall be deemed adequate for lowering the ground-water table.

**1805.4.1 Floor base course.** Floors of basements, except as provided for in Section 1805.1.1, shall be placed over a floor base course not less than 4 inches (102 mm) in thickness that consists of gravel or crushed stone containing not more than 10 percent of material that passes through a No. 4 (4.75 mm) sieve.

**Exception:** Where a site is located in well-drained gravel or sand/gravel mixture soils, a floor base course is not required.

**1805.4.2 Foundation drain.** A drain shall be placed around the perimeter of a foundation that consists of gravel or crushed stone containing not more than 10-percent material that passes through a No. 4 (4.75 mm) sieve. The drain shall extend a minimum of 12 inches (305 mm) beyond the outside edge of the footing. The thickness shall be such that the bottom of the drain is not higher than the bottom of the base under the floor, and that the top of the drain is not less than 6 inches (152 mm) above the top of the footing. The top of the drain shall be covered with an *approved* filter membrane material. Where a drain tile or perforated pipe is used, the invert of the pipe or tile shall not be higher than the floor elevation. The top of joints or the top of

perforations shall be protected with an *approved* filter membrane material. The pipe or tile shall be placed on not less than 2 inches (51 mm) of gravel or crushed stone complying with Section 1805.4.1, and shall be covered with not less than 6 inches (152 mm) of the same material.

**1805.4.3 Drainage discharge.** The floor base and foundation perimeter drain shall discharge by gravity or mechanical means into an *approved* drainage system that complies with the ~~((*International*))~~ *Uniform Plumbing Code*.

**Exception:** Where a site is located in well-drained gravel or sand/gravel mixture soils, a dedicated drainage system is not required.

\*\*\*

## SECTION 1808

### FOUNDATIONS

\*\*\*

**1808.7 Reserved.** ~~((Foundations on or adjacent to slopes. The placement of buildings and structures on or adjacent to slopes steeper than one unit vertical in three units horizontal (33.3-percent slope) shall comply with Sections 1808.7.1 through 1808.7.5.~~

~~**1808.7.1 Building clearance from ascending slopes.** In general, buildings below slopes shall be set a sufficient distance from the slope to provide protection from slope drainage, erosion and shallow failures. Except as provided in Section 1808.7.5 and Figure 1808.7.1, the following criteria will be assumed to provide this protection. Where the existing slope is steeper than one unit vertical in one unit horizontal (100-percent slope), the toe of the slope shall be assumed to be at the intersection of a horizontal plane drawn from the top of the foundation and a plane~~

1 drawn tangent to the slope at an angle of 45 degrees (0.79 rad) to the horizontal. Where a  
2 retaining wall is constructed at the toe of the slope, the height of the slope shall be measured  
3 from the top of the wall to the top of the slope.

4 **1808.7.2 Foundation setback from descending slope surface.** Foundations on or adjacent to  
5 slope surfaces shall be founded in firm material with an embedment and set back from the slope  
6 surface sufficient to provide vertical and lateral support for the foundation without detrimental  
7 settlement. Except as provided for in Section 1808.7.5 and Figure 1808.7.1, the following  
8 setback is deemed adequate to meet the criteria. Where the slope is steeper than 1 unit vertical in  
9 1 unit horizontal (100 percent slope), the required setback shall be measured from an imaginary  
10 plane 45 degrees (0.79 rad) to the horizontal, projected upward from the toe of the slope.  
11

12 **1808.7.3 Pools.** The setback between pools regulated by this code and slopes shall be equal to  
13 one half the building footing setback distance required by this section. That portion of the pool  
14 wall within a horizontal distance of 7 feet (2134 mm) from the top of the slope shall be capable  
15 of supporting the water in the pool without soil support.  
16

17 **1808.7.4 Foundation elevation.** On graded sites, the top of any exterior foundation shall extend  
18 above the elevation of the street gutter at point of discharge or the inlet of an *approved* drainage  
19 device a minimum of 12 inches (305 mm) plus 2 percent. Alternate elevations are permitted  
20 subject to the approval of the *building official*, provided it can be demonstrated that required  
21 drainage to the point of discharge and away from the structure is provided at all locations on the  
22 site.  
23  
24  
25  
26  
27  
28

~~**1808.7.5 Alternate setback and clearance.** Alternate setbacks and clearances are permitted, subject to the approval of the *building official*. The *building official* shall be permitted to require a geotechnical investigation as set forth in Section 1803.5.10.))~~

\*\*\*

## **SECTION 1811**

### **METHANE REDUCTION MEASURES**

**1811.1 Applicability.** This section applies to all construction activities on or within 1,000 feet (305 m) of an active, closed or abandoned landfill (landfill zone) that has been identified by the building official to be generating levels of methane gas on-site at the lower explosive limits or greater levels. The distance shall be calculated from the location of the proposed structure to the nearest property line of the active or former landfill site. The building official is permitted to waive these requirements if technical studies demonstrate that dangerous amounts of methane are not present on the location of the proposed structure.

**1811.2 Protection of Structures.** All enclosed structures to be built within the 1,000 foot (305 m) landfill zone shall be protected from potential methane migration. The method for protecting a structure from methane shall be identified in a report prepared by a licensed civil engineer and submitted by the applicant to the building official for approval. The report shall contain a description of the investigation and recommendations for preventing the accumulation of explosive concentrations of methane gas within or under enclosed portions of the building or structure. At the time of final inspection, the civil engineer shall furnish a signed statement

attesting that, to the best of the engineer's knowledge, the building or structure has been  
constructed in accordance with the recommendations for addressing methane gas migration.

Section 20. The following sections of Chapter 19 of the International Building Code,  
2009 Edition, are amended as follows:

## SECTION 1904

### DURABILITY REQUIREMENTS

\*\*\*

**1904.3 Concrete properties.** Concrete mixtures shall conform to the most restrictive maximum  
water-cementitious materials ratios and minimum specified concrete compressive strength  
requirements of ACI 318, Section 4.3, based on the exposure classes assigned in Section 1904.2.

**Exception:** *For occupancies and appurtenances thereto in Group R occupancies that are in  
buildings less than four stories above grade plane, normal-weight aggregate concrete is  
permitted to comply with the requirements of Table 1904.3 based on the weathering  
classification (freezing and thawing) determined from Figure 1904.3 in lieu of the requirements  
of ACI 318, Table 4.3.1.*

**Code Alternate CA1904.3:** Five-sack 2000 psi (13.8 MPa) and 5 1/2-sack 2500 psi (17.2 MPa)  
concrete mixes are equivalent to 3000 psi (20.7 MPa) concrete for weathering potential. In  
addition, air-entrainment is not required to address weathering, and special inspection is not  
required.

\*\*\*

## SECTION 1905

## CONCRETE QUALITY, MIXING AND PLACING

\*\*\*

**1905.2 Selection of concrete proportions.** Concrete proportions shall be established according to Table 1905.2. Table 1905.2 shall be used only for concrete to be made with cements meeting strength requirements for Type I, II, or III of ASTM C 150, and shall not be applied to concrete containing lightweight aggregates. If approved by the building official, Table 1905.2 is permitted to be used with air-entraining admixtures (conforming to ASTM C260) and/or normal-range water-reducing admixtures (conforming to ASTM C494, Types A, D or E; or C618-05 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete). For strengths greater than 4000 psi (27.7 MPa), proportions shall be established on the basis of field experience and trial mixtures according to Section 1905.3. When approved by the building official, ((€)) concrete proportions shall be determined in accordance with the provisions of ACI 318, Section 5.2.

### TABLE 1905.2

#### MINIMUM PERMISSIBLE CEMENT CONTENT FOR CONCRETE

(Strength Data from Trial Batches or Field Experience are not Available)

<u>SPECIFIED 28-DAY</u> <u>COMPRESSIVE</u> <u>STRENGTH IN psi (f'c)</u>	<u>MINIMUM</u> <u>PERMISSIBLE</u> <u>CEMENT</u> <u>CONTENT IN lb/cu</u> <u>yd</u>	<u>MINIMUM PERMISSIBLE</u> <u>CEMENT CONTENT IN</u> <u>STD. 94-lb SACKS/cu yd</u>
---	---	---

<u>2000</u>	<u>423</u>	<u>4 1/2<sup>1</sup></u>
<u>2500</u>	<u>470</u>	<u>5<sup>1</sup></u>
<u>3000</u>	<u>517</u>	<u>5 1/2</u>
<u>4000<sup>2</sup></u>	<u>611</u>	<u>6 1/2</u>

Mixes shall be proportioned to produce a 5-inch or less slump. No more than a 1-inch plus tolerance shall be allowed:

1. Where special inspection is not required under Section 1704, the minimum permissible cement content shall be increased by 1/2 sack per cubic yard of concrete.
2. For strengths above 4000 psi, see Section 1905.2.

\*\*\*

Section 21. The following sections of Chapter 21 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 21

### MASONRY

\*\*\*

## SECTION 2104

### CONSTRUCTION

**[W] 2104.1 Masonry construction.** Masonry construction shall comply with the requirements of Sections 2104.1.1 through ((2104.4)) 2104.6 and with TMS 602/ACI 530.1/ASCE 6 except as modified by Sections 2104.5 and 2104.6.



**2104.1.1 Tolerances.** Masonry, except masonry veneer, shall be constructed within the tolerances specified in TMS 602/ACI 530.1/ASCE 6.

**2104.1.2 Placing mortar and units.** Placement of mortar, grout, and clay, concrete, glass, and AAC masonry units shall comply with TMS 602/ACI 530.1/ASCE 6.

**2104.1.3 Installation of wall ties.** Wall ties shall be installed in accordance with TMS 602/ACI 530.1/ASCE 6.

**2104.1.4 Chases and recesses.** Chases and recesses shall be constructed as masonry units are laid. Masonry directly above chases or recesses wider than 12 inches (305 mm) shall be supported on lintels.

**2104.1.5 Lintels.** The design for lintels shall be in accordance with the masonry design provisions of either Section 2107 or 2108.

**2104.1.6 Support on wood.** Masonry shall not be supported on wood girders or other forms of wood construction except as permitted in Section 2304.12.

\*\*\*

**[W] 2104.5 TMS 602/ACI 530.1/ASCE 6, Article 3.5 D, grout lift heights.** Modify items 1.b, 1.c, and 2.b of Article 3.5 D as follows:

3.5 D.1.b When the conditions of Articles 3.5 D.1.a.i and 3.5 D.1.a.ii are met but there are intermediate bond beams within the grout pour, limit the grout lift height to the bottom of the lowest bond beam that is more than 5.33 ft. (1.63 m) above the bottom of the lift, but do not exceed a grout lift height of 12.67 ft. (3.86 m).

3.5 D.1.c When the conditions of Article 3.5 D.1.a.i or Article 3.5 D.1.a.ii are not met, place grout in lifts not exceeding 5.33 ft. (1.63 m).

3.5 D.2.b When placed in masonry that has not cured for at least 4 hours, place in lifts not exceeding 5.33 ft. (1.63 m).

**2104.6 TMS 602/ACI 530.1/ASCE 6, Article 3.2F, cleanouts.** Modify the first sentence of Article 3.2F as follows:

Provide cleanouts in the bottom course of masonry for each grout pour when the grout pour height exceeds 5.33 ft. (1.63 m).

\*\*\*

## SECTION 2107

### ALLOWABLE STRESS DESIGN

**[W] 2107.1 General.** The design of masonry structures using *allowable stress design* shall comply with Sections 2106, 2107.2 and the requirements of Chapters 1 and 2 of TMS 402/ACI 530/ASCE 5 except as modified by Sections ((2107.2)) 2107.3 through 2107.5.

**[W] 2107.2 ((TMS 402/ACI 530/ASCE 5, Section 2.1.2, load)) Load combinations.** ((Delete Section 2.1.2.1.)) Structures and portions thereof shall be designed to resist the most critical effects resulting from the load combinations of Section 1605.3. When using the alternative load combinations of Section 1605.3.2 that include wind or seismic loads, allowable stresses are permitted to be increased by one third.

\*\*\*

**[W] 2107.6 TMS 402/ACI 530/ASCE 5, Section 1.16.1 anchor bolts.** Modify the second paragraph of Section 1.16.1 as follows: Anchor bolts placed in the top of grouted cells and bond beams shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the bolts and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the bolts and the masonry unit. Anchor bolts placed in drilled holes in the face shells of hollow masonry units shall be permitted to contact the masonry unit where the bolt passes through the face shell, but the portion of the bolt that is within the grouted cell shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the head or bent leg of the bolt and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the head or bent leg of the bolt and the masonry unit.

## **SECTION 2108**

### **STRENGTH DESIGN OF MASONRY**

\*\*\*

**[W] 2108.4 TMS 402/ACI 530/ASCE 5, Section 3.1.6.** Modify Section 3.1.6 as follows:

3.1.6 Headed and bent-bar anchor bolts. All embedded bolts shall be grouted in place, except that 1/4 inch (6.4 mm) diameter bolts are permitted to be placed in bed joints that are at least 1/2 inch (12.7 mm) in thickness.

**2108.5 TMS 402/ACI 530/ASCE 5, Section 1.16.1 anchor bolts.** Modify the second paragraph of Section 1.16.1 as follows: Anchor bolts placed in the top of grouted cells and bond beams shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the bolts and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the bolts and the masonry

unit. Anchor bolts placed in drilled holes in the face shells of hollow masonry units shall be permitted to contact the masonry unit where the bolt passes through the face shell, but the portion of the bolt that is within the grouted cell shall be positioned to maintain a minimum of 1/4 inch (6.4 mm) of fine grout between the head or bent leg of the bolt and the masonry unit or 1/2 inch (12.7 mm) of coarse grout between the head or bent leg of the bolt and the masonry unit.

\*\*\*

## SECTION 2111

### MASONRY FIREPLACES

\*\*\*

**[W] 2111.7 Fireplaces.** Fireplaces shall be provided with each of the following:

1. Tightly fitting flue dampers, operated by a readily accessible manual or approved automatic control.

**Exception:** Fireplaces with gas logs shall be installed in accordance with the International Mechanical Code Section 901, except that the standards for liquefied petroleum gas installations shall be NFPA 58 (Liquefied Petroleum Gas Code) and NFPA 54 (National Fuel Gas Code).

2. An outside source for combustion air ducted into the firebox. The duct shall be at least 6 square inches, and shall be provided with an operable outside air duct damper.

**Exception:** Washington certified fireplaces shall be installed with the combustion air systems necessary for their safe and efficient combustion and specified by the manufacturer in

1 accordance with the Washington State Building Standard 31-2 (WAC 51-50-31200) and

2 Section 2114.

3 3. Site built fireplaces shall have tight fitting glass or metal doors, or a flue draft induction fan or  
4 as approved for minimizing back-drafting. Factory built fireplaces shall use doors listed for the  
5 installed appliance.

6  
7 **2111.7.1 Lintel and throat.** Masonry over a fireplace opening shall be supported by a lintel of  
8 noncombustible material. The minimum required bearing length on each end of the fireplace  
9 opening shall be 4 inches (102 mm). The fireplace throat or damper shall be located a minimum  
10 of 8 inches (203 mm) above the top of the fireplace opening.

11  
12 **2111.7.2 Damper.** Masonry fireplaces shall be equipped with a ferrous metal damper located at  
13 least 8 inches (203 mm) above the top of the fireplace opening. Dampers shall be installed in the  
14 fireplace or at the top of the flue venting the fireplace, and shall be operable from the room  
15 containing the fireplace. Damper controls shall be permitted to be located in the fireplace.

16 \*\*\*

17  
18 **SECTION 2114**

19 **EMISSION STANDARDS**

20 **2114.1 Emission standards for factory-built fireplaces.** New and used factory-built fireplaces  
21 shall be certified and labeled in accordance with procedures and criteria specified in WAC 51-  
22 50-31200.

23  
24 To certify an entire fireplace model line, the internal assembly shall be tested to determine its  
25 particulate matter emission performance. Retesting and recertifying is required if the design and

1 construction specifications of the fireplace model line internal assembly change. Testing for  
2 certification shall be performed by a Washington State Department of Ecology (DOE) approved  
3 and U. S. Environmental Protection Agency (EPA) accredited laboratory.

4 **2114.2 Emission standards for certified masonry and concrete fireplaces.** New certified  
5 masonry and concrete fireplaces shall be tested and labeled in accordance with procedures and  
6 criteria specified in WAC 51-50-31200.

8 To certify an entire fireplace model line, the internal assembly shall be tested to  
9 determine its particulate matter emission performance. Retesting and recertifying is required if  
10 the design and construction specifications of the fireplace model line internal assembly change.

11 Testing for certification shall be performed by a Washington State Department of Ecology (DOE)  
12 approved and U. S. Environmental Protection Agency (EPA) accredited laboratory.

14 Section 22. The following section of Chapter 23 of the International Building Code, 2009  
15 Edition, is amended as follows:

16 **CHAPTER 23**

17 **WOOD**

18 \*\*\*

19 **SECTION 2303**

20 **MINIMUM STANDARDS AND QUALITY**

21 \*\*\*

22 **2303.4 Trusses.**

**2303.4.1.2 Permanent individual truss member restraint.** Where permanent restraint of truss members is required on the truss design drawings, it shall be accomplished by one of the following methods:

1. Permanent individual truss member restraint/bracing shall be installed using standard industry lateral restraint/bracing details in accordance with generally accepted engineering practice.

Locations for lateral restraint shall be identified on the truss design drawing.

2. The trusses shall be designed so that the buckling of any individual truss member is resisted internally by the individual truss through suitable means (i.e., buckling reinforcement by T-reinforcement or L-reinforcement, proprietary reinforcement, etc.). The buckling reinforcement of individual members of the trusses shall be installed as shown on the truss design drawing or on supplemental truss member buckling reinforcement details provided by the truss designer.

3. A project-specific permanent individual truss member restraint/bracing design shall be permitted to be specified by any qualified *registered design professional*.

\*\*\*

Section 23. The following section of Chapter 24 of the International Building Code, 2009 Edition, is amended as follows:

## **CHAPTER 24**

### **GLASS AND GLAZING**

\*\*\*

#### **SECTION 2405**

#### **SLOPED GLAZING AND SKYLIGHTS**

\*\*\*

**2405.3 Screening.** Where used in monolithic glazing systems, heat-strengthened glass and fully tempered glass shall have screens installed below the glazing material. The screens and their fastenings shall:

- (1) Be capable of supporting twice the weight of the glazing;
- (2) Be firmly and substantially fastened to the framing members; and
- (3) Be installed within 4 inches (102 mm) of the glass. The screens shall be constructed of a noncombustible material not thinner than No. 12 B&S gage (0.0808 inch) with mesh not larger than 1 inch by 1 inch (25 mm by 25 mm). In a corrosive atmosphere, structurally equivalent noncorrosive screen materials shall be used. Heat strengthened glass, fully tempered glass and wired glass, when used in multiple-layer glazing systems as the bottom glass layer over the walking surface, shall be equipped with screening that conforms to the requirements for monolithic glazing systems.

**Exceptions:** In monolithic and multiple-layer sloped glazing systems, the following applies:

1. Fully tempered glass installed without protective screens where glazed between intervening floors at a slope of 30 degrees (0.52 rad) or less from the vertical plane shall have the highest point of the glass 10 feet (3048 mm) or less above the walking surface.
2. Screens are not required below any glazing material, including annealed glass, where the walking surface below the glazing material is permanently protected from the risk of falling glass or the area below the glazing material is not a walking surface.



3. Any glazing material, including annealed glass, is permitted to be installed without screens in the sloped glazing systems of commercial or detached noncombustible greenhouses used exclusively for growing plants and not open to the public, provided that the height of the greenhouse at the ridge does not exceed 30 feet (9144 mm) above grade.

4. Screens shall not be required within individual dwelling units in Groups R-2, R-3 and R-4 where fully tempered glass is used as single glazing or as both panes in an insulating glass unit, and the following conditions are met:

4.1. Each pane of the glass is 16 square feet (1.5 m<sup>2</sup>) or less in area.

4.2. The highest point of the glass is 12 feet (3658 mm) or less above any walking surface or other accessible area.

4.3. The glass thickness is 3/16 inch (4.8 mm) or less.

5. Screens shall not be required for laminated glass with a 15 mil (0.38 mm) polyvinyl butyral (or equivalent) interlayer (~~((within individual dwelling units in Groups R-2, R-3 and R-4))~~) within the following limits:

5.1. Each pane of glass is 16 square feet (1.5 m<sup>2</sup>) or less in area.

5.2. The highest point of the glass is 12 feet (3658 mm) or less above a walking surface or other accessible area.

\*\*\*

Section 24. The following sections of Chapter 26 of the International Building Code, 2009 Edition, are amended as follows:

\*\*\*

## SECTION 2602

### DEFINITIONS

**2602.1 General.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**FIBER REINFORCED POLYMER.** A polymeric composite material consisting of reinforcement fibers, such as glass, impregnated with a fiber-binding polymer which is then molded and hardened.

~~((FIBERGLASS REINFORCED POLYMER. A polymeric composite material consisting of glass reinforcement fibers impregnated with a fiber binding polymer which is then molded and hardened.))~~

**FOAM PLASTIC INSULATION.** A plastic that is intentionally expanded by the use of a foaming agent to produce a reduced-density plastic containing voids consisting of open or closed cells distributed throughout the plastic for thermal insulating or acoustical purposes and that has a density less than 20 pounds per cubic foot (pcf) (320 kg/m<sup>3</sup>).

**LIGHT-DIFFUSING SYSTEM.** Construction consisting in whole or in part of lenses, panels, grids or baffles made with light-transmitting plastics positioned below independently mounted electrical light sources, skylights or light-transmitting plastic roof panels. Lenses, panels, grids and baffles that are part of an electrical fixture shall not be considered as a light-diffusing system.

**LIGHT-TRANSMITTING PLASTIC ROOF PANELS.** Structural plastic panels other than skylights that are fastened to structural members, or panels or sheathing and that are used as light-transmitting media in the plane of the roof.

**LIGHT-TRANSMITTING PLASTIC WALL PANELS.** Plastic materials that are fastened to structural members, or to structural panels or sheathing, and that are used as light-transmitting media in *exterior walls*.

**PLASTIC, APPROVED.** Any thermoplastic, thermosetting or reinforced thermosetting plastic material that conforms to combustibility classifications specified in the section applicable to the application and plastic type.

**PLASTIC GLAZING.** Plastic materials that are glazed or set in frame or sash and not held by mechanical fasteners that pass through the glazing material.

**THERMOPLASTIC MATERIAL.** A plastic material that is capable of being repeatedly softened by increase of temperature and hardened by decrease of temperature.

**THERMOSETTING MATERIAL.** A plastic material that is capable of being changed into a substantially nonreformable product when cured.

\*\*\*

## SECTION 2606

### LIGHT-TRANSMITTING PLASTICS

\*\*\*

**2606.10 Awnings, canopies, patio covers and similar structures.** *Awnings and canopies* constructed of light-transmitting plastics shall be constructed in accordance with the provisions specified in Section 3105 and Chapter 32 for projections. Patio covers constructed of light-transmitting plastics shall comply with Section 2606. Light-transmitting plastics used in canopies

at motor fuel-dispensing facilities shall comply with Section 2606, except as modified by Section 406.5.3.

\*\*\*

## SECTION 2612

### FIBER REINFORCED POLYMER ((~~AND FIBERGLASS REINFORCED POLYMER~~))

**2612.1 General.** The provisions of this section shall govern the requirements and uses of fiber reinforced polymer ((~~or fiberglass reinforced polymer~~)) in and on buildings and structures.

**2612.2 Labeling and identification.** Packages and containers of fiber reinforced polymer ((~~or fiberglass reinforced polymer~~)) and their components delivered to the job site shall bear the *label* of an *approved agency* showing the manufacturer's name, product listing, product identification and information sufficient to determine that the end use will comply with the code requirements.

**2612.3 Interior finishes.** Fiber reinforced polymer ((~~or fiberglass reinforced polymer~~)) used as *interior finishes, decorative materials or trim* shall comply with Chapter 8.

~~((2612.4 Decorative materials and trim. Fiber reinforced polymer or fiberglass reinforced polymer used as decorative materials or trim shall comply with Section 806.))~~

**2612.4 ((2612.5)) Light-transmitting materials.** Fiber reinforced polymer ((~~or fiberglass reinforced polymer~~)) used as light-transmitting materials shall comply with Sections 2606 through 2611 as required for the specific application.

**2612.5 ((2612.6)) Exterior use.** Fiber reinforced polymer ((~~or fiberglass reinforced polymer~~)) shall be permitted to be installed on the *exterior walls* of buildings of any type of construction

when such polymers meet the requirements of Section 2603.5. ~~((and is fireblocked))~~ Fireblocking shall be installed in accordance with Section 717. ~~((The fiber reinforced polymer or the fiberglass reinforced polymer shall be designed for uniform live loads as required in Table 1607.1 as well as for snow loads, wind loads and earthquake loads as specified in Sections 1608, 1609 and 1613, respectively.))~~

**Exceptions:**

1. Compliance with Section 2603.5 is not required when ~~((When))~~ all of the following conditions are met:

1.1. When the area of the fiber reinforced polymer ~~((or the fiberglass reinforced polymer))~~ does not exceed 20 percent of the respective wall area, the fiber reinforced polymer ~~((or the fiberglass reinforced polymer))~~ shall have a flame spread index of 25 or less. ~~((or w))~~ When the area of the fiber reinforced polymer ~~((or the fiberglass reinforced polymer))~~ does not exceed 10 percent of the respective wall area, the fiber reinforced polymer ~~((or the fiberglass reinforced polymer))~~ shall have a flame spread index of 75 or less. The flame spread index requirements do not apply to ~~((shall not be required for))~~ coatings or paints having a thickness of less than 0.036 inch (0.9 mm) that are applied directly to the surface of the fiber reinforced polymer ~~((or the fiberglass reinforced polymer))~~.

1.2. Fireblocking complying with Section 717.2.6 shall be installed.

1.3. The fiber reinforced polymer ~~((or the fiberglass reinforced polymer))~~ shall be installed directly to a noncombustible substrate or be separated from the *exterior wall* by one of the following materials: corrosion-resistant steel having a minimum base metal thickness of

0.016 inch (0.41 mm) at any point, aluminum having a minimum thickness of 0.019 inch (0.5 mm) or other approved noncombustible material.

~~((1.4. The fiber reinforced polymer or the fiberglass reinforced polymer shall be designed for uniform live loads as required in Table 1607.1 as well as for snow loads, wind loads and earthquake loads as specified in Sections 1608, 1609 and 1613, respectively.))~~

2. Compliance with Section 2603.5 is not required when the fiber reinforced polymer is  
~~((When))~~ installed on buildings that are 40 feet (12 190 mm) or less above grade~~((;))~~ when all  
of the following conditions are met:

2.1 ~~((t))~~ The fiber reinforced polymer ~~((or the fiberglass reinforced polymer shall))~~ meets the requirements of Section 1406.2. ~~((and shall comply with all of the following conditions)).~~

2.2 ~~((t.))~~ Where the fire separation distance is 5 feet (1524 mm) or less, the area of the fiber reinforced polymer ~~((or the fiberglass reinforced polymer shall))~~ does not exceed 10 percent of the wall area. Where the fire separation distance is greater than 5 feet (1524 mm), there shall be no limit on the area of the *exterior wall* coverage using fiber reinforced polymer ~~((or the fiberglass reinforced polymer))~~.

~~((2.))~~ 2.3. The fiber reinforced polymer ~~((or the fiberglass reinforced polymer shall have))~~ has a flame spread index of 200 or less. The flame spread index requirements do not apply to ~~((shall not be required for))~~ coatings or paints having a thickness of less than 0.036 inch (0.9 mm) that are applied directly to the surface of the fiber reinforced polymer ~~((or the fiberglass reinforced polymer))~~.

~~((2.3.))~~ 2.4. Fireblocking complying with Section 717.2.6 ~~((shall be))~~ is installed.

~~((2.4. The fiber reinforced polymer or the fiberglass reinforced polymer shall be designed for uniform live loads as required in Table 1607.1 as well as for snow loads, wind loads and earthquake loads as specified in Sections 1608, 1609 and 1613, respectively.))~~

3. Fiber reinforced polymer is permitted to be used as structural reinforcement for concrete or masonry on buildings of any construction type.

\*\*\*

Section 25. The following sections of Chapter 27 of the International Building Code, 2009 Edition, are amended as follows:

## **CHAPTER 27**

### **ELECTRICAL**

#### **SECTION 2701**

##### **GENERAL**

**2701.1 Scope.** This chapter governs the electrical components, equipment and systems used in buildings and structures covered by this code. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of ~~((NFPA 70))~~ the *Seattle Electrical Code*. See *International Fire Code* Section 604.2.14.1.1.

#### **[F] SECTION 2702**

##### **EMERGENCY AND LEGALLY REQUIRED STANDBY POWER SYSTEMS**

**[F] 2702.1 Installation.** With the exception of duration, ~~((E))~~ emergency and legally required standby power systems required by this code or the *International Fire Code* shall be installed in accordance with this code, NFPA110 and 111.

1 [F] **2702.1.1 Stationary generators.** Stationary emergency and legally required standby power  
2 generators required by this code shall be *listed* in accordance with UL 2200.

3 [F] **2702.2 Where required.** Emergency and legally required standby power systems shall be  
4 provided where required by Sections 2702.2.1 through 2702.2.20 and other sections of this code.

5 [F] **2702.2.1 Group A occupancies.** Emergency power systems shall be provided for emergency  
6 voice/alarm communication systems in Group A occupancies in accordance with Section  
7 907.5.2.2.4.

8 [F] **2702.2.2 Smoke control systems.** ((Standby)) Emergency power systems shall be provided  
9 for smoke control systems in accordance with Section 909.11. Legally required standby power  
10 systems shall be provided for pressurization systems in low-rise buildings in accordance with  
11 Section 909.21.

12 [F] **2702.2.3 Exit signs.** Emergency power systems shall be provided for *exit* signs in accordance  
13 with Section 1011.5.3.

14 [F] **2702.2.4 Means of egress illumination.** Emergency power systems shall be provided for  
15 *means of egress* illumination in accordance with Section 1006.3.

16 [F] **2702.2.5 ((~~Aceessible means of egress e~~))Elevators.** Emergency power systems shall be  
17 provided for elevators as set forth in Sections 403.6.1.7, 403.6.2.14 and 3016.6. Legally required  
18 standby ((Standby)) power systems shall be provided for elevators that are part of an *accessible*  
19 *means of egress* in accordance with Section 1007.4.



1 [F] **2702.2.6 Accessible means of egress platform lifts.** Legally required standby ((~~Standby~~))  
2 power systems in accordance with this section or ASME A 18.1 shall be provided for platform  
3 lifts that are part of an *accessible means of egress* in accordance with Section 1007.5.

4 [F] **2702.2.7 Horizontal sliding doors.** Legally required standby ((~~Standby~~)) power systems  
5 shall be provided for horizontal sliding doors in accordance with Section 1008.1.4.3.

6 [F] **2702.2.8 Semiconductor fabrication facilities.** Emergency power systems shall be provided  
7 for semiconductor fabrication facilities in accordance with Section 415.8.10.

8 [F] **2702.2.9 Membrane structures.** Legally required standby ((~~Standby~~)) power systems shall  
9 be provided for auxiliary inflation systems in accordance with Section 3102.8.2. Emergency  
10 power shall be provided for *exit* signs in temporary tents and membrane structures in accordance  
11 with the *International Fire Code*.

12 [F] **2702.2.10 Hazardous materials.** Emergency or legally required standby power systems shall  
13 be provided in occupancies with hazardous materials in accordance with Section 414.5.4 and the  
14 *International Fire Code*.

15 [F] **2702.2.11 Highly toxic and toxic materials.** Emergency power systems shall be provided  
16 for occupancies with highly *toxic* or *toxic* materials in accordance with the *International Fire*  
17 *Code*.

18 [F] **2702.2.12 Organic peroxides.** Legally required standby ((~~Standby~~)) power systems shall be  
19 provided for occupancies with silane gas in accordance with the *International Fire Code*.

20 [F] **2702.2.13 Pyrophoric materials.** Emergency power systems shall be provided for  
21 occupancies with silane gas in accordance with the *International Fire Code*.

1 [F] 2702.2.14 Covered mall buildings. ~~((Standby))~~ Emergency power systems shall be provided  
2 for voice/alarm communication systems in *covered mall buildings* in accordance with Section  
3 402.14.

4 [F] 2702.2.15 High-rise buildings. Emergency ~~((and standby))~~ power systems shall be provided  
5 in high-rise buildings in accordance with Section~~((s 403.4.7 and))~~ 403.4.8.

6 [F] 2702.2.16 Underground buildings. Emergency ~~((and standby))~~ power systems shall be  
7 provided in underground buildings in accordance with Section~~((s))~~ ~~((405.8 and))~~ 405.9.

8 [F] 2702.2.17 Group I-3 occupancies. Emergency power systems shall be provided for doors in  
9 Group I-3 occupancies in accordance with Section 408.4.2.

10 [F] 2702.2.18 Airport traffic control towers. Legally required standby ~~((Standby))~~ power  
11 systems shall be provided in airport traffic control towers in accordance with Section 412.3.5.

12 ~~(([F] 2702.2.19 Elevators. Standby power for elevators shall be provided as set forth in Sections~~  
13 ~~3003.1, 3007.7 and 3008.15. ))~~

14 [F] 2702.2.20 Smokeproof enclosures. ~~((Standby))~~ Emergency power systems shall be provided  
15 for smokeproof enclosures as required by Section 909.20.6.2.

16 [F] 2702.3 Maintenance. Emergency and legally required standby power systems shall be  
17 maintained and tested in accordance with the *International Fire Code*.

18 Section 26. Chapter 29 of the 2009 Seattle Building Code is adopted to read as follows:

## 19 CHAPTER 29

### 20 MINIMUM PLUMBING FIXTURES AND SANITATION FACILITIES

#### 21 SECTION 2901

## GENERAL

**2901.1 Scope.** The provisions of this chapter shall apply to the number of plumbing fixtures and sanitation facilities to be provided in an occupancy regulated by this Code.

**2901.2 Minimum requirements.** Plumbing fixtures and sanitation facilities shall be provided in the minimum number shown in Table 2902.1 and in this chapter. Where the proposed occupancy is not listed in Table 2902.1, the building official shall determine the fixture and facility requirements based on the occupancy which most nearly resembles the proposed occupancy. The number of occupants used for determining minimum fixtures and facilities shall be computed at the rate of one occupant per unit of net floor area as prescribed in Table 2902.1.

Plumbing fixtures need not be provided for unoccupied buildings or facilities.

**2901.3 Enforcement.** The Director of Public Health is authorized to enforce this chapter.

**2901.4 Plumbing and food codes.** Plumbing systems shall comply with the *Uniform Plumbing Code*. See also the *Seattle Food Code*, Seattle Municipal Code Title 10, Subchapter XLI, Sanitary Facilities and Controls.

## SECTION 2902

### FIXTURES

**2902.1 Number of fixtures.**

**2902.1.1 Private offices.** Fixtures only accessible to private offices shall not be counted to determine compliance with this section.

**2902.1.2 Occupancy load distribution.** The occupant load shall be divided equally between the sexes, unless data approved by the building official indicates a different distribution of the sexes.

**2902.1.3 Food preparation areas.** In food preparation, serving and related storage areas, additional fixture requirements may be dictated by health codes.

**2902.1.4 Other requirements.** For other requirements for plumbing facilities, see Section 1210 and Chapter 11.

**2902.2 Access to fixtures.**

**2902.2.1 Location.** Plumbing fixtures shall be located in each building or conveniently in a building adjacent thereto on the same property.

**2902.2.1.1 Toilet rooms.** Toilet rooms shall not open directly into a room used for the preparation of food for service to the public or residents of Group R-2 boarding homes and residential treatment facilities licensed by Washington State.

**2902.2.2 Multiple tenants.** Access to toilets serving multiple tenants shall be through a common use area and not through an area controlled by a tenant.

**2902.2.3 Multistory buildings.** Required fixtures shall not be located more than one vertical story above or below the area served.

**SECTION 2903**

**FACILITIES**

**2903.1 Requirements.** Separate toilet facilities shall be provided for each sex.

**Exception:** In occupancies serving 15 or fewer persons, one toilet facility designed for use by no more than one person at a time shall be permitted for use by both sexes.

**2903.2 Food service establishments.** When customers and employees share the same toilet rooms, customer access to the toilet rooms shall not pass through food preparation and unpackaged food storage areas.

**2903.3 Pay facilities.** Required toilet facilities shall be free of charge. Where pay facilities are installed, they shall be in addition to the minimum required facilities.

## **SECTION 2904**

### **SPECIAL PROVISIONS**

**2904.1 Dwelling units.** Dwelling units shall be provided with a kitchen sink.

**2904.2 Water closet space requirements.** The water closet stool in all occupancies shall be located in a clear space not less than 30 inches (762 mm) in width, with a clear space in front of the stool of not less than 24 inches (610 mm).

**2904.3 Water.** Each required sink, lavatory, bathtub and shower stall shall be equipped with hot and cold running water necessary for its normal operation.

**2904.4 Drinking fountains.**

**2904.4.1 Number.** Occupant loads over 30 shall have one drinking fountain for the first 150 occupants, then one per each additional 500 occupants.

**Exceptions:**

1. Sporting facilities with concessions serving drinks shall have one drinking fountain for each 1,000 occupants.

2. A drinking fountain need not be provided in a drinking or dining establishment.

**2904.4.2 Multistory buildings.** Drinking fountains shall be provided on each floor having more than 30 occupants in schools, dormitories, auditoriums, theaters, offices and public buildings.

**2904.4.3 Penal institutions.** Penal institutions shall have one drinking fountain on each cell block floor and one on each exercise floor.

**2904.4.4 Location.** Drinking fountains shall not be located in toilet rooms.

**TABLE 2902.1**

**MINIMUM PLUMBING FIXTURES<sup>a, b, d, f</sup>**

TABLE 2902.1 --  MINIMUM  PLUMBING  FIXTURES <sup>1,2,4,6</sup>  TYPE OF  BUILDING OR  OCCUPANCY <sup>8</sup>	WATER CLOSETS  (fixtures per person)		LAVATORIES <sup>5</sup>  (fixtures per person)		BATHTUB OR  SHOWER  (fixtures per person)
	MALE <sup>3</sup>	FEMALE	MALE	FEMALE	

For the occupancies listed below, use 30 square feet (2.79 m<sup>2</sup>) per occupant for the minimum number of plumbing fixtures.

**Group A**

**Assembly places --**

Conference rooms, dining rooms, drinking establishments, exhibit rooms, gymnasiums, lounges, stages and similar uses including restaurants classified as Group B Occupancies	1:1-25	1:1-25	One per 2 water closets		
	2:26-75	2:26-75			
	3:76-125	3:76-125			
	4:126-200	4:126-200			
	5:201-300	5:201-300			
	6:301-400	6:301-400			
	Over 400, add one fixture for each additional 200 males or 150 females				
	For the assembly occupancies listed below, use the number of fixed seating or, where no fixed seating is provided, use 15 square feet (1.39 m <sup>2</sup> ) per occupant for the minimum number of plumbing fixtures.				
Assembly places -- <sup>9</sup>  Theaters,	1:1-100	One per  25	1:1-200	1:1-200	
	2:101-200	Up to 400	2:201-	2:201-400	

1	auditoriums,			400		
2	convention halls,	3:201-400		3:401-	3:401-750	
3	dance floors, lodge			750		
4	rooms, casinos, and					
5	such places which	Over 400, add one fixture for		Over 750, add one		
6	have limited time	each additional 250 males or		fixture for each		
7	for fixture use	50 females		additional 500		
8	(intermissions)			persons		
9						
10						
11	Assembly places --	1:1-100	One per	1:1-200	1:1-200	
12			50			
13	Stadiums, arena and	2:101-200	Up to 400	2:201-	2:201-400	
14	other sporting			400		
15	facilities where	3:201-400		3:401-	3:401-750	
16	fixture use is not			750		
17	limited to					
18	intermissions	Over 400, add one fixture for		Over 750, add one		
19		each additional 300 males or		fixture for each		
20		100 females		additional 500		
21				persons		
22						
23						
24						

For the assembly occupancies listed below, use the number of fixed seating or, where no fixed



seating is provided, use 30 square feet (2.79 m<sup>2</sup>) per occupant for the minimum number of plumbing fixtures.

Worship places				
Principal assembly area	One per 150	One per 75	One per 2 water closets	
Educational & activity unit	One per 125	One per 75	One per 2 water closets	

For the occupancies listed below, use 200 square feet (18.58 m<sup>2</sup>) per occupant for the minimum number of plumbing fixtures.

<b>Group B</b>  and other clerical or administrative employee accessory use	1:1-15	1:1-15	One per 2 water closets	
	2:16-35	2:16-35		
	3:36-55	3:36-55		
	Over 55, add one for each additional 50 persons			

For the occupancies listed below, use 100 square feet ( 9.3 m<sup>2</sup>) per student for the minimum number of plumbing fixtures.

<b>Group E</b>	1:1-15	1:1-15	One per 2 water closets		
Schools - for staff use	2:16-35	2:16-35			
All schools	3:36-55	3:36-55			
(One staff per 20 students)	Over 55, add one fixture for each additional 40 persons				
Schools - for student use	1:1-20	1:1-20	1:1-20	1:1-20	
Day care	2:21-50	2:21-50	2:21-50	2:21-50	
	Over 50, add one fixture for each additional 50 persons		Over 50, add one fixture for each additional 50 persons		
Elementary	One per 30	One per 25	One per 2 water closets		
Secondary	One per 40	One per 30	One per 2 water closets		

For the occupancies listed below, use 50 square feet (4.65 m<sup>2</sup>) per occupant for the minimum

number of plumbing fixtures.

**Education facilities  
 other than Group  
 E**

Others (colleges, universities, adult centers, etc.)	One per 40	One per 25	One per 2 water closets	
--	------------	---------------	----------------------------	--

For the occupancies listed below, use 2,000 square feet (185.8 m<sup>2</sup>) per occupant for the minimum number of plumbing fixtures.

<b>Group F and Group H</b>	1:1-10	1:1-10	One per 2 water closets	
--------------------------------	--------	--------	----------------------------	--

Workshop, foundries and similar establishments, and hazardous occupancies	2:11-25	2:11-25			One shower for each 15 persons exposed to excessive heat or to skin contamination with irritating materials
	3:26-50	3:26-50			
	4:51-75	4:51-75			

	5:76-100	5:76-100			
	Over 100, add one fixture for each additional 30 persons				
For the occupancies listed below, use the designated application and 200 square feet (18.58 m <sup>2</sup> ) per occupant of the general use area for the minimum number of plumbing fixtures.					
Group I <sup>7</sup>					
Hospital waiting rooms	One per room (usable by either sex)		One per room		
Hospital general use areas	1:1-15	1:1-15	One per 2 water closets		
	2:16-35	3:16-35			
	3:36-55	3:36-55			
	Over 55, add one fixture for				

		each additional 40 persons			
Hospital patient rooms:					
Single Bed	One adjacent to and directly accessible from		One per toilet room		One per toilet room
Isolation	One adjacent to and directly accessible from		One per toilet room		One per toilet room
Multibed	One per 4 patients		One per 4 patients		One per 8 patients
Long-term	One per 4 patients		One per 4 patients		One per 15 patients
Jails and reformatories					
Cell	One per cell		One per cell		
Exercise room	One per exercise room		One per exercise room		
Other institutions (on each occupied floor)	One per 25	One per 25	One per 2 water closets		One per 8

For the occupancies listed below, use 200 square feet (18.58 m<sup>2</sup>) per occupant for the minimum number of plumbing fixtures.

<b>Group M</b>					
Retail or wholesale stores	1:1-50	1:1-50	One per 2 water closets		
	2:51-100	2:51-100			
	3:101-400	3:101-200			
		4:201-300			
		5:301-400			
	Over 400, add one fixture for each additional 300 males or 150 females				

For Group R Occupancies containing dwelling units or guest rooms, use the table below. For dormitories, use 200 square feet (18.58 m<sup>2</sup>) per occupant for the minimum number of plumbing fixtures.

<b>Group R</b>					
Dwelling units	One per dwelling unit		One per dwelling unit	One per dwelling	

					unit
Hotel, motel, and boarding house guest rooms	One per guest room		One per guest room		One per guest room
Boarding homes licensed by the department of social and health services	One per 8	One per 8	One per 8	One per 8	One per 12
Dormitories	One per 10	One per 8	One per 12	One per 12	One per 8
	Over 10, add one fixture for each additional 25 males and over 8, add one for each additional 20 females		Over 12, add one fixture for each additional 20 males and one for each additional 15 females		For females, add one additional unit per each additional 30. Over 150 persons, add one additional unit per each additional 20 persons

For the occupancies listed below, use 5,000 square feet (464.5 m<sup>2</sup>) per occupant for the minimum

number of plumbing fixtures.

<b>Group S</b>	1:1-10	1:1-10	One per 40 occupants of each sex		One shower for each 15 persons exposed to excessive heat or to skin contamination with poisonous, infectious or irritating materials
Warehouses	2:11-25	2:11-25			
	3:26-50	3:26-50			
	4:51-75	4:51-75			
	5:76-100	5:76-100			
	Over 100, add one for each 30 persons				

a. The figures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction thereof.

b. For occupancies not shown, see Section 2901.2.



c. Where urinals are provided, one water closet less than the number specified is permitted to be provided for each urinal installed, except the number of water closets in such cases shall not be reduced to less than one quarter (25 percent) of the minimum specified. For men's facilities serving 26 or more persons, not less than one urinal shall be provided.

d. For drinking fountains, see Section 2904.4.

e. Twenty-four inches (610 mm) of wash sink or 18 inches (457 mm) of a circular basin, provided with water outlets for such space, shall be considered equivalent to one lavatory.

f. For when a facility may be usable by either sex, see Section 2903.1.

g. See *Washington Administrative Code* 246-320 for definitions, other fixtures and equipment for hospitals.

h. When a space is accessory to or included as a part of a different occupancy group per Chapter 3, the area per occupant for the minimum plumbing fixture number is to be determined by its own specific use or purpose, not by that of the building's occupancy group.

i. In multiplex movie theaters, where shows are scheduled at different times, the number of occupants for toilet fixture use is permitted to be based upon one-half (50 percent) of the total in all the auditoriums, but no less than the number in the largest auditorium.

Section 27. Chapter 30 of the 2009 Seattle Building Code is adopted to read as follows:

## **CHAPTER 30**

### **ELEVATORS AND CONVEYING SYSTEMS**

## SECTION 3001

### PURPOSE

The purpose of this chapter is to protect persons, buildings and the contents thereof from hazards arising from the use of elevators, dumbwaiters, material lifts, escalators, moving walks and other conveyances by establishing minimum requirements regulating the design, construction, alteration, operation and maintenance of elevators, dumbwaiters, material lifts, escalators, moving walks and other conveyances, and by establishing procedures by which these requirements may be enforced.

## SECTION 3002

### SCOPE

**3002.1 General.** This code of safety standards covers the design, construction, installation, operation, inspection testing, maintenance, alteration and repair of elevators, dumbwaiters, material lifts, escalators, moving walks and other conveyances.

#### **3002.2 Application to existing conveyances.**

**3002.2.1 Minimum standard for existing conveyances.** All existing conveyances shall comply with Washington Administrative Code (WAC) Chapter 296-96 Part D at it existed on the date this code became effective and Section 3011 as a minimum standard.

**3002.2.2 Maintenance.** All conveyances covered under this chapter, both existing and new, and all parts thereof shall be maintained in a safe condition. All devices and safeguards that are required by this chapter shall be maintained in good working order. All devices or safeguards that were required by a code in effect when the conveyance was installed, altered,

1 or repaired shall be maintained in good working order. Maintenance shall comply with

2 ASME A17.1 Section 8.6. The owner or the owner's designated agent is responsible for the

3 maintenance of such equipment.

4 **3002.2.3 Repairs and replacements.** Repairs to existing conveyances and replacements of  
5 devices and components shall be made with parts of at least equivalent material, strength and  
6 design. They shall comply with WAC 296-96 Part D and ASME A17.1 Section 8.6.

7  
8 **3002.2.4 Additions and alterations.** Additions and alterations are permitted to be made to  
9 the conveyance system of existing buildings or structures without making the entire system  
10 comply with all of the requirements of this chapter for new buildings or structures, provided  
11 the additions and alterations that are made comply with the requirements of this chapter for a  
12 new system, except as otherwise specifically provided in this code and in other applicable  
13 retroactive ordinances of the city.  
14

15 Unless otherwise approved by the building official, alterations, repairs, replacements and  
16 maintenance of conveyances shall comply with the requirements of ASME A17.1 Section  
17 8.7. Where Section 8.7 refers to a requirement that has been amended by this chapter, the  
18 requirements of this chapter take precedence. Where Section 8.7 refers to ASME A17.3, the  
19 requirements of WAC 296-96 Part D apply. Alterations to existing material lifts shall  
20 conform with the requirements of WAC Chapter 296-96 Part C1 Material Lifts.  
21

22 **3002.2.5 Seismic improvements.** The building official is authorized to promulgate rules to  
23 establish standards for seismic improvements to existing conveyances.  
24  
25  
26  
27  
28

**3002.2.6 Change of use.** When the use of an existing freight elevator is changed to carrying of passengers, the elevator must comply with the retroactive requirements of this code, ASME A17.1, 2.16.4 and WAC 296-96 Part D for passenger elevators.

**3002.2.7 Historic buildings and structures.** See Section 3409 for regulations regarding historic buildings or structures.

**3002.3 References to the National Electrical Code.** For the purpose of this chapter, all references in the ASME Code to the National Electrical Code include the Seattle Electrical Code. All electrical work shall be done in accordance with the requirements of the Seattle Electrical Code.

**3002.4 Conflicts.** In any case where the codes adopted by reference in Section 3003 conflict with the requirements of this chapter, this chapter controls.

## **SECTION 3003**

### **CODES**

**3003.1 Seattle Elevator Code.** The following are adopted by reference as part of the Seattle Building Code; they also constitute the Elevator Code of the City of Seattle.

1. ASME Codes:

- 1.1. Safety Code for Elevators and Escalators, ASME A17.1-2007, A17.1a-2008, as amended in this ordinance and Appendices A through D, F through J, L, M and P through S.

**Exceptions:**

1. ASME A17.1 Sections 5.4, 5.5 and 5.10, are not adopted.

2. ASME A17.1 Section 1.2.1, Purpose, is not adopted.

1.2 Safety Standard for Platform Lifts and Stairway Chairlifts, ASME A18.1-2008.

2. Safety regulations for all elevators, dumbwaiters, escalators and other conveyances, Washington Administrative Code Chapter 296-96 at it existed on the date this code became effective.

**Exception:** The following sections of WAC Chapter 296-96 are not part of the Elevator Code of the City of Seattle:

1. Part B, Licenses and Fees for all Elevators, Dumbwaiters, Escalators, and Other Devices.
2. Part B-1, Regulations and Fees for All Elevators, Dumbwaiters, Escalators and Other Conveyances
3. Part C3, Construction, Operation, Maintenance and Inspection of Private Residence Conveyances for Transporting Property for Residential Use.
4. Part C4, Temporary Hoists.
5. Part C5, Additional Types of Conveyances.

**3003.2 Licensing.** All persons and firms working on conveyances in Seattle shall comply with RCW chapter 70.87 and WAC chapter 296-96.

**3003.3 Administrative rules.** The building official is authorized to adopt by administrative rule, in accordance with Section 104.17, addenda to ASME A17.1-2007 that furthers the intent and purpose of this code, that encourages the use of state of the art technology, materials or methods

of construction, and which provides standards that are equal or better than those contained in this code.

## **SECTION 3004**

### **DEFINITIONS**

The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein. These definitions are in addition to ASME A17.1 Section 1.3, RCW 70.87, Laws Governing Elevators and Other Lifting Devices, and Chapter 2 of this code.

**ALTERATIONS, REPAIRS AND REPLACEMENTS.** See ASME A17.1 Section 1.3.

**AUTOMATIC ELEVATOR.** A type of elevator that does not require an attendant. All calls are registered by the passengers.

**AUTOMOBILE PARKING ELEVATOR.** An elevator located in either a stationary or horizontally moving hoistway and used exclusively for parking automobiles where, during the parking process, each automobile is moved under its own power onto and off the elevator directly into parking spaces or cubicles in line with the elevator and where no persons are normally stationed on any level except the receiving level.

**CONTROL ROOM.** An enclosed control space outside the hoistway, intended for full bodily entry, that contains the motor controller. The room could also contain electrical or mechanical equipment used directly in connection with the elevator, dumbwaiter, or material lift but not the electric driving machine or the hydraulic machine.

1 **CONTROL SPACE.** A space outside the hoistway, intended to be accessed with or without full  
2 bodily entry, that contains the motor controller. This space could also contain electrical or  
3 mechanical equipment used directly in connection with the elevator, dumbwaiter, or material lift  
4 but not the electric driving machine or the hydraulic machine.

5 **CONVEYANCE.** An elevator, accessibility lift, escalator, dumbwaiter, material lift, automobile  
6 parking elevator, moving walk or other elevating device.

7 **CONVEYANCES IN SERVICE.** Units that are in operation, are inspected and certified by the  
8 building official for operation.

9 **CONVEYANCES OUT OF SERVICE.** The use of the unit has been prohibited either  
10 temporarily or permanently in accordance with Section 3005 below.

11 **ENFORCING AUTHORITY.** As used in ASME A17.1 means the building official.

12 **EXISTING INSTALLATIONS.** All conveyances that have been tested and approved for use  
13 by the building official.

14 **INSPECTOR.** Inspectors employed by the City of Seattle and working under the direction of the  
15 building official.

16 **MACHINE ROOM.** An enclosed machinery space outside the hoistway, intended for full  
17 bodily entry, that contains the electric driving machine or the hydraulic machine. The room  
18 could also contain electrical and/or mechanical equipment used directly in connection with the  
19 elevator, dumbwaiter, or material lift.

20 **MACHINERY SPACE.** A space inside or outside the hoistway, intended to be accessed with or  
21 without full bodily entry, that contains elevator, dumbwaiter, or material lift mechanical  
22  
23

equipment, and could also contain electrical equipment used directly in connection with the elevator, dumbwaiter, or material lift. This space could also contain the electric driving machine.

**MATERIAL LIFT.** A fixed, stationary conveyance that:

1. Has a car or platform that moves in guides;
2. Serves two or more floors or landings of a building or structure;
3. Has a vertical rise of at least 30 inches (762 mm) and no more than sixty feet (18 288 mm);
4. Has a maximum speed of fifty feet (15 240 mm) per minute;
5. Is an isolated, self-contained lift and is not a part of a conveying system;
6. Travels in an inclined or vertical, but not horizontal, direction;
7. Is operated only by, or under the direct supervision of, an individual designated by the employer; and
8. Is installed in a commercial or industrial area, and not in an area that is open to access by the general public.

## **SECTION 3005**

### **AUTHORITY TO DISCONNECT UTILITIES, TAKE CONVEYANCES OUT OF**

### **SERVICE AND INVESTIGATE ACCIDENTS**

**3005.1 Disconnection of utilities.** In addition to the provisions for Emergency Orders provided in Section 102, the building official is authorized to disconnect or order discontinuance of any utility service or energy supply to equipment regulated by this code in cases of emergency or where necessary for safety to life and property. Such utility service shall be discontinued until the



1 equipment, appliances, devices or wiring found to be defective or defectively installed are  
2 replaced, repaired, or restored to a safe condition. Proper posting and seals shall be affixed to the  
3 equipment to prevent inadvertent use.

4 **3005.2 Conveyances out of service.** A conveyance shall be taken out of service temporarily  
5 after the building official has inspected the unit for proper parking of the car, securing the  
6 hoistway openings, and disconnection of power. A seal and tag shall be placed on the equipment  
7 to insure against unauthorized use. A conveyance is permitted to remain in a temporarily out-of-  
8 service status for a period not to exceed two years, after which time it shall be placed in a  
9 permanently out-of-service status.  
10

11 **Exception:** Elevators that could be returned to service without repair are permitted to remain  
12 in a temporary out-of-service status with approval of the building official.

13 A conveyance shall be placed permanently out of service by landing the car and  
14 counterweights and removing the hoisting cables or fluid lines. Conveyances placed in a  
15 permanently out-of-service status shall have the hoistway sealed off for fire protection by  
16 securing existing doors.  
17

18 Conveyances in an out-of-service status either temporarily or permanently are permitted to be  
19 placed back into service and classified as an existing installation unless determined to be  
20 hazardous by the building official. Requirements in effect at that time must be completed before  
21 certification and use. No installation or reconnection of hydraulic elevators powered by city water  
22 pressure is permitted.  
23  
24  
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28

**3005.3 Report and investigation of accidents.** The owner or the owner's authorized agent shall promptly notify the building official of each accident involving a conveyance that requires the service of a physician or results in a disability exceeding one day, and shall afford the building official every facility for investigating and inspecting the accident. The building official shall without delay, after being notified, make an inspection and shall place on file a full and complete report of the accident. The report shall give in detail all material facts and information available and the cause or causes, so far as they can be determined. The report shall be open to public inspection at all reasonable hours. If an accident involves the failure or destruction of any part of the construction or the operating mechanism of a conveyance, the use of the conveyance is forbidden until it has been made safe, it has been reinspected and any repairs, changes, or alterations have been approved by the department, and a permit has been issued by the building official. The removal of any part of the damaged construction or operating mechanism from the premises is forbidden until the building official grants permission to do so.

## **SECTION 3006**

### **INSTALLATION AND ALTERATION PERMITS**

**3006.1 Installation permits.** A permit issued by the building official is required to install any elevator, escalator, dumbwaiter, automobile parking elevator, material lift, ~~or~~ moving walk or other conveyance. A separate permit shall be obtained for each conveyance installed regardless of location and/or contract arrangements.

**3006.2 Alteration/repair permits.** A permit is required to make any alterations to existing elevators, escalators, dumbwaiters, automobile parking elevators, material lifts, moving walks or

other conveyances. A separate permit shall be obtained for each conveyance altered or relocated regardless of location and/or contract arrangements.

**Exceptions:**

1. Permits for repairs required by inspection reports are permitted to be combined for a single building.
2. The building official is permitted to issue a single permit for minor alterations to more than one conveyance that do not require individual retesting of each conveyance.
3. No permit shall be required for ordinary repairs made with parts of the same materials, strength and design normally necessary for maintenance.

**3006.3 Temporary use permits.** The building official is permitted to issue a temporary use permit for a period not to exceed 60 days to allow completion of installation and passing of the final inspection. Temporary use permits may be renewed by the building official. If, at any time during the period of temporary use, the building official determines that the building owner is not making adequate progress toward completion of the installation and passing of the final inspection, the building official is permitted to withdraw the temporary use permit on 7 days notice. The building official is authorized to forbid further use of the conveyance until a certificate of inspection is obtained. If any conveyance is found to be unsafe or fails to comply with a notice of correction, the building official is authorized to revoke the temporary use permit.

**3006.4 Expiration, renewal and revocation of permits.** Sections 106.9 through 106.12 apply to permits required by this chapter.

## SECTION 3007

### PLANS AND SPECIFICATIONS

**3007.1 Permit drawings.** Two sets of drawings shall be submitted with applications for installations of new elevators, escalators, dumbwaiters, automobile parking elevators, material lifts moving walks and other conveyances.

The drawings shall show beams, attachments, loads and reactions, and shall bear the seal of a structural engineer licensed under the laws of Washington State. The structural engineer in responsible charge for the building shall review the drawings and forward them to the building official with a notation indicating that the drawings have been reviewed and been found to be in general conformance to the design of the building.

**Exception:** An engineer's stamp is not required for hydraulic elevators.

**3007.2 Amendments to the permit.** If changes to the approved work are made during construction, approval of the building official shall be obtained prior to execution. The inspector may approve minor changes for work that will not reduce the structural strength or fire and life safety of the structure. The inspector shall determine if it is necessary to revise the approved construction documents. No changes that are subject to special inspection required by Chapter 17 shall be made during construction unless approved by the building official. If revised plans are required, changes shall be shown on two sets of plans that shall be submitted to and approved by the building official, accompanied by fees specified in the Fee Subtitle prior to occupancy. All changes shall conform to the requirements of this code and other pertinent laws and ordinances and other issued permits.

## SECTION 3008

### REQUIRED INSTALLATION INSPECTIONS

**3008.1 Installation inspections.** It is the duty of the person doing the work authorized by a permit to notify the building official that such work is ready for inspection.

It is the duty of the person requesting any inspections required by this chapter to provide access to and means for proper inspection of such work.

Final inspection shall be called for by the applicant when the work described on the permit has been completed, and when ready for testing with weights and instruments, as needed. A final inspection is required after all wiring has been completed and all permanent fixtures such as switches, outlet receptacles, plates, lighting fixtures and all other equipment has been properly installed and the hoistway and machine rooms are properly completed.

## SECTION 3009

### CERTIFICATES OF INSPECTION AND OPERATION

**3009.1 Certificates required.** It is a violation of this code to operate any elevator, escalator, dumbwaiter, automobile parking elevator, material lift, moving walk or other conveyance without a certificate of inspection or authorization of temporary use issued by the building official. A certificate of inspection shall be issued following an inspection by the building official showing that the conveyance has been found to be in safe operating condition and applicable fees for inspection time, as set forth in the Fee Subtitle, have been paid. The certificate is valid until 45 days after the next inspection or until the certificate is withdrawn, whichever comes first.

1 If any conveyance is found to be unsafe or fails to comply with a notice of correction, the  
2 building official is authorized to withdraw the certificate of inspection.

3 **3009.2 Periodic inspections.** The building official shall cause inspections to be made of every  
4 conveyance at intervals of 12 months or as soon thereafter as is practical. The inspector shall file  
5 a full and correct report on each conveyance with the building official that shall note any code  
6 violations, corrections required and the general condition of the conveyance.  
7

8 **3009.3 Inspection report by building official.** After each required inspection of a conveyance  
9 the building official shall mail a copy of the inspection report to the owner of the conveyance  
10 inspected. If inspection shows a conveyance to be in violation of the requirements of this chapter,  
11 the building official shall issue a notice in writing listing the corrections to be made to the  
12 conveyance that are necessary to bring it into compliance with this chapter and is authorized to  
13 order the operation thereof discontinued until the corrections are made.  
14

15 **3009.4 Inspections, tests and test reports.** Reports of required tests shall be submitted to the  
16 owner and to the building official on forms furnished by the building official. Performance of  
17 required tests and their cost shall be the responsibility of the owner. Identification of conveyances  
18 shall be noted by use of assigned city numbers.  
19

## 20 **SECTION 3010**

### 21 **REQUIREMENTS FOR OPERATION AND MAINTENANCE**

22  
23 **3010.1 Responsibility for operation and maintenance.** The owner is responsible for the safe  
24 operation and maintenance of each device regulated by this chapter. The installation of pipes,  
25 ducts, conduits, wiring and the storage of materials not required for the operation of the elevator  
26

is prohibited in machine rooms and hoistways. See Section 3022. Sidewalk elevators in public places are also subject to the requirements of Title 15, Seattle Municipal Code, Street and Sidewalk Use, as amended. See Part 8 of ASME A17.1 for requirements for operation and maintenance.

## **SECTION 3011**

### **RETROACTIVE REQUIREMENTS FOR EXISTING INSTALLATIONS**

**3011.1 General.** Existing conveyances shall be made to comply with WAC 296-96 Part D, Regulations for Existing Elevators, Dumbwaiters, and Escalators and the provisions of this section.

**3011.2 Doors to elevator and dumbwaiter machine rooms.** Doors to elevator and dumbwaiter machine rooms, control rooms and machinery spaces shall be self-closing and self-locking. The lock shall be a spring-type lock arranged to permit the door to be opened from the inside without a key, incapable of being left in the unlocked position, and accessible only by a key from the outside.

**3011.3 Key retainer box.** A key retainer box locked and keyed to the standard City access key for elevator access and operation keys shall be provided. The key retainer box shall meet the following standards:

1. Dimensions – (~~eight~~) 8 inches high, (~~six~~) 6 inches wide, (~~one~~) 1 inch deep.
2. Material – (~~sixteen~~) 16 gauge steel welded.
3. Color - red (unless located in the main lobby above the hall call button, (~~six~~) 6 feet nominal above the floor).

1        4. Labeling - "FOR FIRE DEPARTMENT USE."

2        5. Lock - Ace one-inch cylinder cam lock key #39504.

3        The key retainer box is to be installed at the designated recall floor above the Phase I recall  
4 switch or in the main lobby above the hall call button when no recall feature exists. The key  
5 retainer box is to be mounted (~~six~~) 6 feet nominal above the floor. The building official is  
6 permitted to approve other locations upon request.  
7

8        Key retainer boxes are permitted to comply with Section 3016.9 as an alternative to  
9 complying with this section.

10       **3011.4 Elevator access keys.** Keys for access to and for the operation of elevating equipment  
11 shall be tagged and retained in the key retainer box. The key retainer box shall contain fire  
12 emergency service keys (Phase I and II, one key for each switch) and keys for any of the  
13 following that are in the building:  
14

- 15        1. Machine room door;
- 16        2. Secondary level door;
- 17        3. Pit door;
- 18        4. Roof door;
- 19        5. Independent, hospital emergency and/or attendant operation;
- 20        6. Hoistway access;
- 21        7. Mechanical hoistway access devices (broken arm, lunar, etc.);
- 22        8. Miscellaneous switches with locks;
- 23        9. Fire alarm panel room;
- 24
- 25
- 26
- 27
- 28



10. Sprinkler valve control room.

**3011.5 Dumbwaiter machinery access.** Access doors to dumbwaiter machinery space shall be provided with electric contacts and labeled on the exterior side “DANGER - DUMBWAITER MACHINE” in one-inch letters.

**3011.6 Machine space lighting and receptacles.** Permanent electric lighting shall be provided in all machine rooms and machinery spaces. The illumination shall be not less than 10 foot-candles (108 lux) at the floor level. The lighting control switch shall be located within easy reach of the access to the room or space. Where practicable, the light control switch shall be located on the lock-jamb side of the access door. Where practical, elevator pits and machine rooms shall be provided with an electrical receptacle.

**3011.7 Access to terminal landings.** Mechanical access to terminal landings of elevator hoistways shall be provided in accordance with WAC 296-96-23162 (1).

**3011.8 Wall covering material for passenger cars.** All materials exposed to the car interior and the hoistway shall be metal or shall conform to the following:

(1) Materials in their end use configuration, other than those covered by paragraph (2) below, shall conform to the following requirements, based on the tests conducted in accordance with the requirements of ASTM E 84, ANSI/UL 723 or NFPA 252:

- (a) flame spread rating of 0 to 75;
- (b) smoke development of 0 to 450.

(2) Napped, tufted, wove, looped, and similar materials in their end use configuration on car enclosure walls shall have a flame spread rating of 0-25.

(3) Padded protective linings, for temporary use in passenger cars during the handling of freight, shall be of materials conforming to either paragraph (1) or (2) above. The protective lining shall clear the floor by not less than 4 inches (102 mm).

(4) Floor covering, underlayment, and its adhesive shall have a critical radiant flux of not less than  $0.45 \text{ W/cm}^2$  as measured by ASTM E 648. Floor finish materials of a traditional type such as wood, vinyl, linoleum and terrazzo are permitted to be used.

**Exception:** Handrails, operating devices, ventilating devices, signal fixtures, audio and visual communication devices, and their housings are not required to comply with this Section 3011.8.

**3011.9 Control and operating circuits and overcurrent protection.** Overcurrent protection shall be maintained in accordance with *1984 National Electrical Code* Section 620-61.

**3011.9.1 Control and operating circuits.**

**3011.9.1.1 Electric elevators.** 1. For electric elevators, the normal and final terminal stopping device shall not control the same controller switches unless two or more separate and independent switches are provided, two of which shall be closed to complete the driving-machine motor-and-brake circuit in either direction of travel. Where a two- or three-phase alternating current driving-machine motor is used, these switches shall be of the multipole type.

The control shall be so designed and installed that a single ground or short circuit may permit either, but not prevent both, the normal and final stopping device circuits from stopping the car.

2. In the design and installation of the control and operating circuits in electric elevators, the following requirements shall be met:

a. If springs are used to actuate switches, contactors or relays to break the circuit to stop an elevator at the terminal landings, they shall be of the compression type.

b. The completion or maintenance of an electric circuit shall not be used to interrupt the power to the elevator driving-machine motor or brake at the terminal landings, nor to stop the car when the emergency stop switch is opened or any of the electrical protective devices operate.

**Exception:** The requirements of this rule do not apply to dynamic braking, nor to speed control switches.

c. The failure of any single magnetically operated switch, contactor or relay to release in the intended manner, or the failure of any static control device to operate as intended, or the occurrence of a single accidental ground, shall not permit the car to start or run if any hoistway door interlock is unlocked or if any hoistway door or car door or gate electric contact is not in the closed position.

d. If generator-field control is used, means shall be provided to prevent the generator from building up and applying sufficient current to the elevator driving-machine motor to move the car if the elevator motor control switches are in the "OFF" position. The means used shall not interfere with

1 maintenance of an effective dynamic-braking circuit during stopping and  
2 standstill conditions.

- 3 e. The control circuits shall be so designed and installed that the car speed in the  
4 down direction with rated load in the car, under normal operating conditions  
5 with the power supply on or off does not exceed governor tripping speed or  
6 125 percent of rated speed, whichever is less.  
7

- 8 3. Elevators with driving motors employing static control without motor generator  
9 sets shall conform to the following requirements:

- 10 a. Two devices shall be provided to remove power independently from the  
11 driving-machine motor. At least one device shall be an electromechanical  
12 contactor.  
13  
14 b. The contactor shall be arranged to open each time the car stops.  
15  
16 c. The contactor shall open the driving-machine brake circuit.  
17  
18 d. An additional contactor shall be provided to also open the driving-machine  
19 brake circuit. This contactor is not required to have contacts in the driving-  
20 machine motor circuit.  
21  
22 e. The electrical protective devices required by Rule 210.2 of ASME A17.1d-  
23 1986 shall control the solid state device and both contactors.

24 **Exception:** Leveling can take place with power opening of doors and  
25 gates as restricted by the requirements of Rules 112.2a(1) and 112.2b(1) of  
26 ASME A17.1d-1986.  
27  
28

- 1                   f. After each elevator stop, the car shall not respond to a signal to start unless  
2                   both contactors are in the de-energized position.

3                   **Exception:** Elevators employing alternating-current hoist motors driven  
4                   from a direct-current source through a static inverter.

- 5                   4. Elevators employing alternating-current driving motors driven from a direct-  
6                   current power source through a static inverter shall conform to the following  
7                   requirements:  
8

- 9                   a. Two separate means shall be provided to independently inhibit the flow of  
10                  alternating current through the solid state devices that connect the direct-  
11                  current power source to the alternating-current driving motor. At least one of  
12                  the means shall be an electromechanical relay.  
13  
14                  b. The relay shall be arranged to open each time the car stops.  
15                  c. The relay shall cause the driving-machine brake circuit to open.  
16                  d. An additional contactor shall be provided to also open the driving-machine  
17                  brake circuit. This contactor is not required to have contacts in the driving-  
18                  machine motor circuit.  
19  
20                  e. The electrical protective devices required by Rule 210.2 of ASME A17.1d-  
21                  1986 shall control both the means that inhibit the flow of alternating current  
22                  through the solid state devices and the contactors in the brake circuit.  
23  
24  
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28

**Exception:** Leveling can take place with power opening of the doors and gates as restricted by the requirements of Rules 112.2a(1) and 112.2b(1) of ASME A17.1d-1986.

- f. After each elevator stop, the car shall not respond to a signal to start unless the relay that inhibits the flow of alternating current through the solid state devices, and the contactors in the brake circuit, are in the de-energized position.

**3011.9.1.2 Hydraulic elevators.** The design and installation of the control and operating circuits for hydraulic elevators shall conform to the following requirements:

- a. Springs, where used to actuate switches, contactors or relays to stop an elevator at the terminals or to actuate electrically operated valves, shall be of the compression type.
- b. The completion or maintenance of an electric circuit shall not be used to interrupt the power to control-valve-operating magnets nor to the pump driving motor of electro-hydraulic elevators under the following conditions:
  1. To stop the car at the terminals.
  2. To stop the car when the emergency-stop switch or any of the electrical protective devices operate.
- c. The failure of any single magnetically operated switch, contactor or relay to release in the intended manner or the occurrence of a single accidental ground

shall not permit the car to start or run if any hoistway door interlock is unlocked  
or if any hoistway-door or car-door or gate contact is not in the closed position.

**3011.10 Roped hydraulic elevators.** Roped horizontal hydraulic elevators are permitted to  
continue in service but once taken out of service shall not be reactivated.

**3011.11 Pit Access and equipment.** Access ladders shall be installed in elevator pits deeper  
than 3 feet.

Pits shall be illuminated by a permanent luminaire that provides not less than 5 foot-candles  
(54 lux) of illumination at the pit floor. Light bulbs shall be externally guarded to prevent  
contact and accidental breakage.

Pit light control switches shall be located inside the hoistway of every elevator approximately  
48 inches above the threshold, and either within 18 inches of the access door or within reach  
from the access floor and adjacent to the pit ladder if provided.

Access shall be provided for safe maintenance and inspection of all equipment located in the  
pit.

**3011.12 Floor numbers.** Elevator hoistways shall have floor numbers not less than 2 inches in  
height, placed on the walls and/or doors of hoistways at intervals such that a person in a stalled  
elevator upon opening the car door could determine the floor position.

**3011.13 Car top work light.** A permanently wired work light and outlet shall be installed on top  
of freight and passenger elevators to provide adequate illumination for inspection and work in the  
hoistway. The light shall be provided with a non-keyed switch in or adjacent to the fixture. The  
fixture shall be protected from accidental breakage.

1 **3011.14 Labeling.** All equipment (disconnect switches, machines and controllers) operating on a  
2 voltage in excess of 250 volts shall be labeled for the voltage used in letters 3/4 inches high.

3 **3011.15 Interior alterations.** Alterations or modifications of elevator car interiors shall comply  
4 with ASME A17.1, 8.7.2.15.2 (increase or decrease in deadweight of car), Building Code  
5 requirements concerning flame spread ratings for wall coverings (See Chapter 8), and lighting  
6 requirements of ASME A17.1.  
7

8 **3011.16 Illumination.** Illumination in the elevator car shall be maintained unless it is turned off  
9 manually by the switch in the car. A readily-accessible and labeled toggle-type test switch shall  
10 be provided on the top of the car to cut lighting power manually and test the emergency lighting.  
11

12 **3011.17 Conveyance number designation.** In any building with more than one elevator,  
13 escalator or other type of conveyance a designating number (not less than two inches in height)  
14 shall be located at the door of the main entrance lobby, inside the car, on the machine, on the  
15 disconnect switch or stop switch, and on escalator upper and lower front plates.  
16

17 **3011.18 Escalator starting switches.** “Up” and “Down” positions shall be clearly indicated on  
18 all starting switches.

19 **3011.19 Anchorage for elevator equipment.** All elevator equipment, hydraulic or cable type  
20 shall be anchored.  
21

22 **3011.20 Restricted opening of doors.** All existing passenger elevators in Group R-1 hotels and  
23 dormitory buildings shall comply with the following.  
24  
25  
26  
27  
28



1. When a car is outside the unlocking zone, the hoistway doors or car doors shall be so arranged that the hoistway doors or car doors cannot be opened more than 4 inches (102 mm) from inside the car.
2. When the car doors are so arranged that they cannot be opened when the car is outside the unlocking zone, the car doors shall be openable from outside the car without the use of special tools.
3. The doors shall be unlocked when the car is within 3 inches (76 mm) above or below the landing and are permitted to be configured to be unlocked up to 18 inches (457 mm) above or below the landing.

## SECTION 3012

### RETROACTIVE REQUIREMENTS FOR EXISTING MATERIAL LIFTS

**3012.1 General.** Existing material lifts shall be made to comply with the following requirements.

(Note: New material lifts shall comply with Section 3013).

**3012.2 Hoistway enclosure gates and doors.** The openings at each material lift landing shall have gates or doors that guard the full width of the opening. A hoistway door shall be vertically sliding, bi-parting, counter-balanced, or horizontally swinging or sliding. Gates and doors shall meet the following requirements:

1. A balanced-type, vertically sliding hoistway gate shall extend from not more than ~~((two))~~ 2 inches from the landing threshold to not less than ~~((sixty-six))~~ 66 inches above the landing threshold.

2. A gate shall be solid or openwork of a design that will reject a ball ((~~two~~)) 2 inches in diameter. A gate shall be located so that the distance from the hoistway face of the gate to the hoistway edge of the landing sill is not more than ((~~two and one half~~)) 2 1/2 inches. A gate shall be designed and guided so that it will withstand a lateral pressure of one hundred pounds applied at approximately its center without breaking or being permanently deformed and without displacing the gate from its guides or tracks.
3. Hoistway gates or doors shall have a combination mechanical lock and electric contact, which shall prevent operation of the material lift by the normal operating devices unless the door or gate is closed.

### **3012.3 Controls.**

1. The control station shall be remotely mounted so that it is inaccessible from the material lift car.
2. Controls shall be clearly marked or labeled to indicate the function of control.
3. All control stations shall have a stop switch. When opened, the stop switch shall remove the electrical power from the driving machine and brake. The stop switch shall:
  - 3.1 Be manually operated;
  - 3.2 Have red operating handles or buttons;
  - 3.3 Be conspicuously and permanently marked "STOP";
  - 3.4 Indicate the stop and run positions; and
  - 3.5 Be arranged to be locked in the open position.

### **3012.4 Capacity posting and no-riders sign.**

Each material lift shall have a capacity sign permanently and securely fastened in place in the material lift car and on the landings. The sign shall indicate the rated load of the material lift in pounds. The sign shall be metal with black letters two inches high on yellow background.

A sign stating "NO PERSONS PERMITTED TO RIDE THIS DEVICE" shall be conspicuously and securely posted on the landing side of all hoistway gates and doors and in the enclosure of each material lift car. The sign shall be metal with black letters (~~two~~) 2 inches high on red background.

### **SECTION 3013**

#### **REQUIREMENTS FOR NEW MATERIAL LIFTS**

**3013.1 New material lifts.** New material lifts shall comply with ASME A17.1, Sections 2.7, 2.8 and 3.7. WAC 296-96 Part C1, Minimum Standards for All Material Lifts, as it existed on the date this code became effective, applies to all material lifts as defined in Section 3004.

### **SECTION 3014**

#### **EMERGENCY SERVICE FOR ELEVATORS IN EXISTING BUILDINGS - PHASE I**

##### **RECALL**

**3014.1 General.** All existing elevators requiring Phase I recall when installed or under Chapter 93 of the Seattle Fire Code shall comply with this section.

##### **Exceptions:**

1. Elevators that comply with the standards for new installations provided in Section 3018;

2. Elevators with less than 25 feet of travel if the building official and the fire code official give written approval; and
3. Elevators that comply with ASME A17.1, Rule 211.3a 1984 edition or later and Sections 3014.10 and 3014.11.

**3014.2 Phase I recall keyed switch.** A three-position (“on”, “off ” and “by-pass”) key cylinder switch shall be provided at each designated level within easy line of sight of the elevator controlled by the switch. If additional switches are provided in a central control station they shall be two position (“off ” and “on”) key-operated switches.

**3014.3 Keyed cylinder-type switches.** Keyed cylinder-type switches shall comply with the following:

1. Keys shall be removable only in the emergency (“on”) and normal (“off ” ) positions.  
Keys shall not be removable in the by-pass position.
2. One key shall be provided for each Phase I switch or key cylinder.
3. All emergency operation cylinders (Phases I and II) shall be keyed alike but such key shall not be a part of a building master key system.

**3014.4 Key location.**

1. A key box meeting the standards of Section 3011.3 shall be provided at the designated recall floor above the Phase I recall switch. The key box is to be mounted approximately ~~((six))~~ 6 feet above the floor. The building official is permitted to approve other locations upon request.

2. When a central control station is provided, an additional set of keys shall be provided and hung in the control station in a location designated by the fire chief. The keys shall be identified by a ring or paddle.

#### **3014.5 Key switch functions.**

1. The three positions of the switch shall be marked “by-pass”, “off ” and “on”.
2. If the switch is in the “off ” position, normal elevator service shall be provided and smoke detectors, if required, shall be functional.
3. If the switch is in the “by-pass” position, normal elevator service shall be restored independent of any required smoke detectors.
4. If the switch is in the “on” position, the elevators are in Phase I elevator recall mode.

#### **3014.6 Phase I automatic recall operation.** If the Phase I recall switch is in the emergency (“on”) position:

1. All cars controlled by this switch that are on automatic service shall return nonstop to the designated level and power-operated doors shall open and remain open.
2. A car traveling away from the designated level shall reverse at or before the next available floor without opening its doors.
3. A car stopped at a landing shall have the in-car emergency stop switch or in-car stop switch rendered inoperative as soon as the doors are closed and the car starts toward the designated level. A moving car, traveling to or away from the designated level, shall have the in-car emergency stop or in-car stop switch rendered inoperative immediately.

1 4. A car standing at a floor other than the designated level, with doors open and in-car  
2 emergency stop switch or in-car stop switch in the run position, shall conform to the  
3 following:

4 4.1 Elevators having automatic power-operated horizontally sliding doors shall  
5 close the doors without delay and proceed to the designated level;

6 4.2 Elevators having power-operated vertically sliding doors provided with  
7 automatic or momentary pressure closing operation in accordance with ASME  
8 A17.1 Rule 112.3d 1984 or later edition shall have the closing sequence  
9 initiated without delay in accordance with ASME A17.1 Rule 112.3d (1), (2),  
10 (3), and (5) 1984 or later edition, and the car shall proceed to the designated  
11 level;

12 4.3 Elevators having power-operated doors provided with continuous pressure  
13 closing operation per ASME A17.1 Rule 112.3b 1984 or later edition or  
14 elevators having manual doors shall conform to the requirements of Section  
15 3014.7. Sequence operation, if provided, shall remain effective.

16 5. Door reopening devices for power-operated doors that are sensitive to smoke or flame  
17 shall be rendered inoperative. Mechanically actuated door reopening devices not sensitive  
18 to smoke or flame shall remain operative. Car door open buttons shall remain operative.  
19 Door closing shall conform to the requirements of ASME A17.1 Rule 112.5 1984 or later  
20 edition. Door hold open switches shall be rendered inoperative.  
21  
22  
23  
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6. All car and corridor call buttons and all corridor door opening and closing buttons shall be rendered inoperative. All call register lights and directional lanterns shall be extinguished and remain inoperative. Position indicators, if provided, shall remain in service. All prior registered calls shall be canceled.

7. The activation of a smoke detector installed in accordance with Article 93 of the Seattle Fire Code in any elevator lobby or associated elevator machine room, other than the designated level, shall cause all cars in all groups that serve that lobby to return nonstop to the designated level. The fire code official is permitted to approve the connection of other detection devices to activate recall. The operation shall conform to the requirements of Phase I emergency recall operation. Whenever new elevator controllers are installed, they shall meet all provisions of the then current building and elevator codes. Newly-installed controllers shall have the capability of selecting alternate recall floors.

**3014.7 Attendant-operated recall operation.** Attendant-operated elevators shall be provided with visible and audible signals that alert the operator to return to the lobby when the car has been recalled under Phase I control.

**3014.8 Dual recall operation.** Elevators arranged for dual operation shall conform to all requirements for automatic operation and attendant operation as applicable.

**3014.9 Inspection/maintenance recall operation.** During inspection operation the audible and visible signals required in Section 3014.7 will be actuated when the car has been recalled under

1 Phase I control. The car shall remain under the control of the operator and/or car top station until  
2 the car is returned to service.

3 **3014.10 Nurses' preemption.** Nurses' preemption (hospital service) is permitted to commandeer  
4 up to one-half of the cars in a particular bank of elevators. At least one-half of the cars shall  
5 respond to Phase I and all cars not preempted shall respond.

6  
7 **3014.11 Operation instruction.** Instructions for operation of elevators under Phase I shall be  
8 incorporated with or adjacent to the Phase I switch at the designated level. Instructions for  
9 operation of elevators under Phase II shall be incorporated with or adjacent to the switch, in or  
10 adjacent to the operating panel in each car. In addition, Phase I operating instructions shall be  
11 adjacent to the Phase I switch in the fire control center and other approved locations.  
12

13 Instructions shall be in letters not less than 1/8 inch (3.2 mm) in height and shall be  
14 permanently installed and protected against removal or defacement.

15 **3014.12 Latching.** All cars responding to Phase I Recall, activated by a smoke detector or other  
16 approved detection device, shall return to the appropriate recall floor as determined by the first  
17 detector recall signal received. No device other than the Phase I switch is permitted to override  
18 the first recall signal received. A later detection signal shall not change the recall floor. Smoke  
19 detector activation shall only be reset manually.  
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## SECTION 3015

### EMERGENCY SERVICE FOR ELEVATORS IN EXISTING BUILDINGS - PHASE II

#### HIGH RISE IN-CAR OPERATION

**3015.1 General.** Existing elevators in buildings having floors used for human occupancy located more than 75 feet above the lowest level of fire department vehicle access, or buildings having floors used for human occupancy 35 feet above grade, which lack fire department vehicle access to at least one side shall have Phase II in-car operation and shall comply with this section.

**Exceptions:**

1. Elevators that comply with the standards for new installations as provided in Section 3019;
2. Elevators with less than 25 feet of travel when the building official and fire code official give written approval; and
3. Elevators that comply with ASME A17.1 Rule 211.3c 1984 or later edition.

**3015.2 Phase II in-car operation key switch.**

1. A two-position (“off” and “on”) key cylinder switch shall be provided in each elevator car.
2. The switch shall become effective only when the designated level Phase I switch is in the “on” position or a smoke detector has been activated and the car has returned to the designated level. The “on” position shall place the elevator in Phase II in-car operation.
3. The elevator shall be removed from Phase II operation only by moving the switch to the “off” position with the car at the designated level.

4. The switch shall be operable by the Phase I key and such key shall not be part of a building's master key system.

5. The key shall be removable only in the "off" position.

6. One key shall be provided for each Phase II switch or key cylinder.

**3015.3 Key location.** See Section 3014.4 for the location of the keys.

**3015.4 Designated operator.** The operation of elevators on Phase II emergency in-car operation shall be by trained emergency service personnel only.

**3015.5 Car operation only.** An elevator shall be operable only by a person in the car.

**3015.6 Corridor call buttons and directional lanterns.** All corridor call buttons and directional lanterns shall remain inoperative.

**3015.7 Car and Hoistway Door Operation.** The operation of car and hoistway doors shall comply with the following:

1. The opening of power-operated doors shall be controlled only by constant-pressure open buttons or switches.

2. If the constant-pressure open button or switch is released prior to the doors reaching the fully open position, the doors shall automatically reclose. Once doors are fully open, they shall remain open until signaled to close.

3. The closing of power-operated doors shall be by constant pressure of either the call button or door-close button. If a door-close button is supplied, it shall be operable.

- 1 4. If the constant-pressure close button or car call button is released prior to the doors  
2 reaching the fully closed position, the doors shall automatically reopen. Once doors are  
3 fully closed, they shall remain closed until signaled to open.

4 **Exception:** Momentary pressure control of doors using the sill trip-type operator may  
5 be permitted as existing; however, the doors must not open automatically upon arrival  
6 at a floor.  
7

8 **3015.8 Door reopening devices.** Smoke-sensitive door reopening devices and door hold-open  
9 switches shall be rendered inoperative. Non-smoke-sensitive door reopening devices required to  
10 be operative under all other conditions may be rendered inoperative under Phase II in-car  
11 operation only if the doors are closed by constant pressure.  
12

13 **3015.9 Car call cancellation.** All registered calls shall cancel at the first stop.

14 **3015.10 Direction of travel.** Direction of travel and start shall be by the car call buttons. With  
15 doors in the closed position, actuation of the car call button shall select the floor, and start the car  
16 to the selected floor. If no door-close button is available, constant pressure of the car call button  
17 shall select the floor, close the door, and start the car to the selected floor.  
18

19 **Exception:** On proximity-type car call buttons or any other type subject to false firing (calls  
20 being placed by line spikes, intermittent loss of power, etc.), the doors shall be closed by a  
21 door-close button. Floors may be selected either before or after closing of the doors. The car  
22 will start only on the call button or door close button depending on which is the last device to  
23 be actuated.  
24

25 **3015.11 Motor generator time out.** The motor generator shall not time out automatically.  
26  
27  
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**3015.12 Car position indicators.** The car position indicators, when provided, shall be operative.

**3015.13 Phase II priority.** Phase II operation shall override any floor calls keyed out for security reasons. Floor selection buttons shall be provided in the car to permit travel to all floors served by the car. Means that prevent the operation of these buttons shall be rendered inoperative.

**3015.14 False starts.** The elevator shall not start if no calls registered.

**3015.15 Terminal runs.** The elevator shall not make unprogrammed terminal runs.

**3015.16 Loss of power.** Elevators on fire emergency Phase II car operation shall remain in their respective locations and in Phase II mode upon loss of power. They shall not move unless the elevator is under the control of the operator and power has been restored.

## **SECTION 3016**

### **NEW INSTALLATIONS - CONSTRUCTION STANDARDS**

**3016.1 General.** All new elevators, escalators, moving walks, dumbwaiters and other conveyances and their installation shall conform to the requirements of ASME A17.1 as amended by this chapter.

**3016.2 Wall covering material for passenger cars.** Wall covering material for passenger cars shall comply with the following:

1. ASME A17.1 Section 2.14.
2. Seattle Building Code requirements concerning flame spread ratings for wall coverings and use of plastics. (See Chapter 8.)

3. WAC 296-96-23216 as it existed on the date this code became effective, except that interior finish materials need not be firmly bonded flat to the enclosure and are permitted to be padded.

**3016.3 Seismic considerations.** New installations shall comply with ASME A17.1 Section 8.4. The provisions for Seismic Zone 3 shall apply.

**3016.4 Requirements to accommodate people with disabilities.** All new elevators shall comply with Chapter 11. In addition, WAC 296-96-02400 through 02605 applies.

**3016.5 Hoistway smoke control.** The requirements of Section 3016.5 apply in addition to ASME A17.1, 2.1.4 and Section 708.14.

1. Hoistways of elevators shall be provided with means to prevent the accumulation of smoke and hot gases in case of fire.
2. When an elevator hoistway is pressurized and emergency or legally required standby power is provided for the pressurization equipment under the provisions of Section 708 or 909, hoistway venting is not required.
3. Pressurization.
  - 3.1 When pressurization is installed in elevator hoistways, the pressurization of the hoistway shall be measured with all elevator systems in recall mode, Phase I, and all cars at the designated recall level with the doors in the open position.
  - 3.2 Activation of the fan serving the hoistway may be delayed by up to 30 seconds so that elevator recall can be initiated prior to pressurizing the hoistway.

- 1 4. Unless specifically installed to serve that space only, environmental air systems and  
2 pressurization systems shall not be located in hoistways, elevator mechanical rooms and  
3 elevator machinery spaces.

4 **Exceptions:**

- 5 1. Pressurization ducts serving a hoistway that are separated from the room or  
6 space by construction equal to the rated construction of the room or space and  
7 so located that all required clearances are maintained.  
8  
9 2. Pressurization duct openings, dampers and grilles are permitted to be located  
10 in hoistway shaft walls if the pressurization air does not impair the operation  
11 of the elevator.  
12  
13 5. Hoistways shall not be pressurized through pressurization of elevator machine rooms.  
14 The machine room floor between the hoistway and overhead machine room shall contain  
15 as few penetrations as possible. All penetrations for cable drops, etc., shall be held to a  
16 minimum size.  
17  
18 6. Elevator doors shall operate properly when hoistway pressurization is in effect.  
19  
20 7. Ventilation louver operating motors shall not infringe on any elevator machinery or  
21 controller working clearances.  
22  
23 8. Hoistways shall be vented in accordance with the following:  
24 8.1 Hoistways of elevators with more than 25 feet of travel from lowest floor level to  
25 highest floor level shall be provided with means for venting smoke and hot gases  
26 to the outer air in case fire or smoke is detected in the building.  
27  
28

**Exception:** Pressurized hoistways are permitted to be unvented.

8.2 Vents, if used, shall be located in the side of the hoistway enclosure directly below the machine room floor or ceiling at the top of the hoistway, and shall open directly to the outer air or through noncombustible ducts to the outer air. Ducts must have the same rating as is required for the hoistway they are venting.

8.3 The area of the vents shall not be less than (~~((three and one-half))~~)  $3\frac{1}{2}$  percent of the area of the hoistway nor less than three square feet for each elevator car, whichever is greater. The required area of the vent is to be free area, unobstructed by louvers, etc.

8.4 When dampers are provided, they shall be of the normally-open type (open with power off). They shall be in the closed position unless power fails, or they are activated by fire alarm or approved smoke detection system.

**3016.6 Elevator operation on emergency power.** All elevators required to be supplied with emergency power shall comply with the following:

1. Each elevator shall be transferable to the emergency power supply system.
2. Emergency power supply systems capable of handling all elevators on the premises need no sequencing or switching other than the possibility of staggering the restarting of the generators.
3. Emergency power supply systems whose capacity can only handle one elevator of a duplex or one elevator in each group of elevators shall comply with the following. (For

1 the purposes of this section, group is defined as all elevators serving the same portions of  
2 a building: highrise, midrise, lowrise, etc.)

3 3.1 All elevators on automatic operation shall be automatically assigned emergency  
4 power in sequence and returned to the Phase I recall or lobby floor, where they  
5 shall open their doors and then time out of service.  
6

7 3.2 The last car down will generally be the selected car of a duplex or a group to  
8 remain in service. The service shall continue to be automatic.

9 3.3 The assignment of emergency power will skip or rotate past cars that are out of  
10 service (emergency stop switch pulled, malfunction, car top operation, etc.). If  
11 assignment is made to a manual or attendant-operated car and the car is  
12 unattended, the system shall rotate past the car as though it is out of service.  
13

14 4. The car and elevator machine room lights shall be activated on the emergency system.

15 5. A manual emergency power assignment switch or switches shall be in an elevator status  
16 panel located in the fire department central control station. Each elevator shall be capable  
17 of being assigned emergency power from this location. The manual switching shall be  
18 effective at all times other than when the cars are automatically sequencing to the lobby  
19 or when the selected car is traveling. The switch shall not remove power in midflight or  
20 with doors closed.  
21

22 6. Elevators on Phase II car operation shall remain in their respective locations upon loss of  
23 power. They shall remain in Phase II mode and shall not move unless the elevator is  
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25  
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1 under the control of the operator and normal power has been restored or emergency  
2 power has been assigned to the car by either automatic or manual means.

- 3 7. Loss of power and initiation of emergency power immediately after Phase I recall  
4 operation has occurred shall not cause any cars to be stranded in the building. Upon the  
5 application of emergency power to the equipment, the cars shall follow the normal  
6 sequencing to the lobby, open their doors and time out of service. When all cars have  
7 been bypassed (out of service) or returned to the lobby, the assigned car shall then  
8 become available for firefighter's use on Phase II in-car operation.  
9  
10 8. Each elevator operating on emergency power shall be tested in accordance with  
11 applicable ASME A17.1a-2008, 2.16.8, 2.26.10 and 2.27.2, and ASME A17.2-2007, Part  
12 6.  
13  
14 9. If the elevator cars are recalled to the alternate floor by Phase I recall and a loss of power  
15 occurs, the cars shall be sequenced to the alternate floor upon assignment of emergency  
16 power. The cars shall not go to the primary designated recall floor under these conditions.  
17 The alternate floor shall be provided with a means of identifying the elevator that is  
18 supplied with emergency power.  
19  
20 10. The elevator position indicator system, if provided, shall not become disoriented due to  
21 the loss of power or any other reason. However, upon the resumption of power, the car  
22 may move to reestablish absolute car position.  
23  
24 11. Communications to the car shall remain in service.  
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**3016.7 Multiple hoistways.** The number of elevators permissible in a hoistway is as follows:

See ASME A17.1, 2.1.1.4.

1. No more than four elevators shall be in a single hoistway.
2. No more than three elevators serving all or the same portion of a building are permitted to be in a single hoistway.

**Exception:** Four elevators serving all or the same portions of a building are permitted to be in a common hoistway under the following conditions:

1. The hoistway is pressurized; and
2. Emergency generator power is available to serve both the elevators and pressurization equipment.

**3016.8 Additional doors.** Doors other than the hoistway door and the elevator car door are prohibited at the point of access to an elevator car.

**Exception:** Doors that are readily openable from the car side without a key, tool, or special knowledge or effort.

**3016.9 Key retainer box.** A key retainer box locked and keyed to the secure city access key for elevator and other conveyance access and operation keys shall be provided. The key retainer box shall meet the following standards:

1. Minimum dimensions- 6 1/2 inches high, 6 inches wide, 2 inches deep
2. Material – at least 16 gauge steel welded
3. Color - red (unless located in the main lobby above the hall call button, 6 feet above the floor).

1        4. Labeling - "For Emergency Use".

2        5. Lock - high security Medeco lock specified by the building official. Use of the key shall  
3        be restricted to fire, emergency response and elevator inspection personnel.

4        The key retainer box shall be flush or surface mounted, installed at the designated recall floor  
5        above the Phase I recall switch or in the main lobby above the hall call button if no recall feature  
6        exists. The key retainer box is to be mounted approximately 6 feet above the floor. The key  
7        retainer box shall be attached to the building so as to be able to withstand a force of 300  
8        lbf/square foot applied horizontally at any point. In buildings with more than one elevator, the  
9        key retainer box shall be large enough to accommodate all required keys. The building official  
10       may approve other locations and custom box types upon request.  
11

12       **3016.10 Elevator access keys.** Keys for access to and for the operation of elevator and other  
13       conveyance equipment shall be tagged and retained in the key retainer box. The key retainer box  
14       shall contain fire emergency service keys (Phase I and II, one key for each switch) and keys to all  
15       of the following that are in the building:  
16

- 17       1. Machine room door;  
18       2. Secondary level door;  
19       3. Pit door;  
20       4. Roof door;  
21       5. Independent, hospital emergency and attendant operation;  
22       6. Hoistway access;  
23  
24  
25  
26  
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7. Mechanical hoistway access devices (broken arm, lunar, etc.);

8. Miscellaneous switch keys;

9. Fire alarm panel room;

10. Sprinkler valve control room.

**3016.11 Escalator and moving walk conveyance number designation.** In any building with more than one escalator or moving walk, a designating number (not less than two inches in height) shall be located on the upper and lower front plates.

**3016.12 Elevator car to accommodate ambulance stretcher.** In buildings four stories or more above grade plane and in buildings that are required to have an elevator and contain Group R-1, R-2 or I occupancies on a level other than the level of exit discharge, at least one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate a 24-inch by 84-inch (610 mm by 2134 mm) ambulance stretcher with not less than 5-inch (127 mm) radius corners, in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than 3 inches (76 mm) high and shall be placed inside on both sides of the hoistway door frame.

**Note:** The stretcher-sized elevator car may also serve as an accessible means of egress as required by Section 1007.2.1 of the Seattle Building Code.

**3016.13 Signs.** A sign complying with ASME A17.1 2.27.9 shall be posted in the elevator lobby of every elevator equipped for firefighters' emergency operation. The signs shall be

located above each hall call fixture noting that the elevators will be recalled to the building lobby on fire alarm.

**Exception:** If approved by the building official, signs need not be posted in lobbies at the main egress level if the means of egress are obviously identifiable.

A sign indicating the number of each elevator shall be posted and maintained in the elevator lobby at the designated recall level and at alternate recall floors, if provided.

**3016.14 Fire service access elevators and occupant evacuation elevators.** See Section 403 for provisions related to fire service access elevators and occupant evacuation elevators.

**3016.15 Energy efficiency.** Elevator systems shall comply with this section.

**3016.15.1 Lighting.** Elevator car lighting systems shall have efficacy of not less than 35 lumens per watt.

**3016.15.2 Ventilation Power.** Ventilation fans for elevators without air-conditioning shall not consume over 0.33 watts per cfm at maximum speed.

## SECTION 3017

### NEW INSTALLATIONS - GENERAL EMERGENCY OPERATION REQUIREMENTS

**3017.1 General.** All elevators shall conform to the requirements of this section and the specific requirements of Sections 3018 and 3019.

**3017.2 Central control stations.** The following criteria shall be met if buildings provide a fire command center in accordance with Section 911:

1. An additional two-position ("off" and "on") Phase I recall switch for each elevator or group as defined by Section 3018 shall be installed when the control station is not within

easy line of sight of the lobby Phase I recall switches; the switch(es) shall be rotated clockwise to go from “off” to “on” position;

2. A car position indicator shall be permanently installed, which shall be of a positive type that will not lose the car position nor need resetting on loss of power. Reading of the indicator shall not require special knowledge.
3. Firefighter’s phone jacks shall be provided that allow each elevator car to be connected to the fire control center;

**Exception:** Fire department radio systems may be provided in lieu of phone jacks if approved by the fire department.

4. A manual emergency power assignment switch;
5. A Phase I indicator;
6. A Phase II indicator.

**3017.3 Nurses' preemption.** Nurses' preemption (hospital service) may be allowed to commandeer up to one-half of the cars in a particular bank of elevators. At least one-half of the cars shall respond to Phase I and all cars not preempted shall respond.

**3017.4 Phase I and II operation instructions.** Operation instructions shall be available in accordance with ASME A17.1, 2.27.7. In addition, Phase I operating instructions shall be adjacent to the Phase I switch in the fire control center and other approved locations. The Phase II operation instructions shall identify the location of the elevator machine rooms and control rooms.

**3017.5 Fireman's visual signal, ASME 2.27.3.2.6.** Elevators requiring Phase I or Phase II operation shall comply with ASME 2.27.3.2.6 as amended below:

2.27.3.2.6 When a ~~((fire alarm initiating device))~~ smoke or heat detector in the machine room, ~~((control space,))~~ control room, or hoistway ~~((initiates))~~ is activated during Phase I Emergency Recall Operation, as required by 2.27.3.2.3 or 2.27.3.2.4 or Phase II Emergency In-Car Operation as required by 2.27.3.3, the visual signal [see 2.27.3.1.6(h) and Fig. 2.27.3.1.6(h)] shall illuminate intermittently only in a car(s) with equipment in that machine room, control space, control room, or hoistway.

## **SECTION 3018**

### **NEW INSTALLATIONS - PHASE I RECALL REQUIREMENTS**

**3018.1 ASME A17.1, 2.27.3 General.** ASME A17.1, 2.27.3, Firefighters' Emergency Operations Service—Automatic Elevators, is superseded by the following.

Phase I emergency recall operation shall be provided for all elevators with fully automatic open and close power-operated doors.

**3018.2 ASME A17.1, 2.27.3.1 Phase I emergency recall operation.** Elevators requiring Phase I recall emergency operation shall comply with ASME A17.1, 2.27.3.1 Phase I Emergency Recall Operation, and the following:

Groups of elevators containing four or more cars shall be provided with two, three-position key switches per group. A group is defined for the purpose of this section as all elevators serving the same portion of a building. Two-position ("off" and "on") switches shall be provided in the fire control center if this code requires such a center. The switch(es) shall be rotated clockwise

to go from “off” to “on” position. Hall call buttons common to a group shall remain in service unless both Phase I recall switches of a four-car or larger group are placed in the recall mode, or a fire alarm recall signal is initiated.

## SECTION 3019

### NEW INSTALLATIONS - PHASE II IN-CAR OPERATION REQUIREMENTS (ASME A17.1, 2.27.8)

**3019.1 Phase II In-car Operation.** Elevators requiring Phase II in-car operation shall comply with ASME A17.1, 2.27.8 Switch Keys, as amended below.

**ASME 2.27.8 Switch Keys.** The key switches required by 2.27.2 through 2.27.5 for all elevators in a building shall be operable by the FEO-K1 key. The keys shall be Group 3 Security (see 8.1). A separate key shall be provided for each switch.

These keys shall be kept in the key retainer box required by Section 3016.9. ~~((on the premises in a location readily accessible to firefighters and emergency personnel, but not where they are available to the public.))~~ This key shall be of a tubular, 7 pin, style 137 construction and shall have a bitting of 6143521 starting at the tab sequenced clockwise as viewed from the barrel end of the key. The key shall be coded “FEO-K1.” The possession of the “FEO-K1” key shall be limited to elevator personnel, emergency personnel, elevator equipment manufacturers, and authorized personnel during checking of Firefighters’ Emergency Operation (see 8.1 and 8.6.11.1).

~~((Where provided, a lock box, including its lock and other components, shall conform to the requirement of UL 1037 (see Part 9).))~~



NOTE (2.27.8): ~~Local authorities may specify additional requirements for a uniform keyed lock box and its location to contain the necessary keys.))~~

## SECTION 3020

### NEW INSTALLATIONS - CONSTRUCTION OF HOISTWAYS, MACHINE ROOMS AND CONTROL ROOMS

**3020.1 Construction of hoistways.** All new elevator hoistways shall comply with ASME A17.1, section 2.1 as amended by this section. ~~((be of fire resistance rated construction if required by Section 707. ASME A17.1, 2.1.1.1, 2.1.1.2, 2.7.1.1, and 2.7.1.2 are superseded by this section.~~

~~Hoistways not required to be of fire resistance rated construction shall comply with ASME A17.1, 2.1.1.2 as amended below. ))~~

## SECTION 2.1

### CONSTRUCTION OF HOISTWAYS AND HOISTWAY ENCLOSURES

#### 2.1.1 Hoistway Enclosures

~~((Hoistway enclosures shall conform to 2.1.1.1, 2.1.1.2, or 2.1.1.3.))~~

Hoistways that penetrate a floor/ceiling assembly shall be protected by a fire-resistance-rated enclosure complying with this section.

#### **Exceptions:**

1. In other than Group H occupancies, an enclosure is not required for elevators located within atriums complying with Section 404. The elevator is required to comply with 2.1.1.3.

2. Hoistway enclosures are not required to be fire-resistance rated as provided in items

2.1 and 2.2.

2.1 In parking garages, hoistway enclosures that serve only the parking garage are not required to be rated.

2.2 In other than Groups I-2 and I-3, hoistway enclosures are not required to be rated, if the hoistway:

2.2.1 Does not connect more than two stories.

2.2.2 Does not open to a corridor in Group I and R occupancies.

2.2.3 Does not open to a corridor on nonsprinklered floors in any occupancy.

2.2.4 Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.

2.2.5 Is limited to the one smoke compartment.

**2.1.1.1 Fire-Resistive Construction**

**2.1.1.1.1** Where rated hoistway enclosures are required, the enclosure shall be of fire-resistance rated construction as required for shafts by Section 708.4. ((Where fire-resistive construction is required, hoistways shall be enclosed in conformance with the requirements of the building code (see 1.3).))

**2.1.1.1.2** Partitions between hoistways and machine rooms and control rooms

~~((a) machinery spaces outside the hoistway~~

~~(b) machine rooms~~

~~(c) control spaces outside the hoistway~~

~~(d) control rooms~~

~~that have)) shall be fire partitions complying with Section 709 having a fire-resistive rating of at least one hour, or shall be of noncombustible solid ((or openwork)) construction ((that meets the requirements of 2.1.1.2.2(d)(1), (2), and (3))). Partitions ((of solid construction)) shall be permitted to have openings essential for ropes, drums, sheaves, and other elevator equipment.~~

~~((Openwork construction shall reject a ball 25 mm (1 in.) in diameter, except where there are openings essential for ropes, drums, sheaves, and other elevator equipment.))~~

**2.1.1.1.3** Hoistway enclosure openings shall be protected in accordance with Section 715 as required for fire barriers. Doors shall be self- or automatic-closing by smoke detection in accordance with Section 715.4.8.3. ~~((with entrances or access doors having a fire protection rating conforming to the requirements of the building code.))~~

#### **2.1.1.2 Non-Fire-Resistive Construction**

**2.1.1.2.1** Where fire-resistive construction is not required by 2.1.1. ~~((the building code,))~~ hoistway construction shall conform to 2.1.1.2.2 or 2.1.1.3.

**2.1.1.2.2** The hoistway shall be fully enclosed ~~((conforming to 2.1.1.2.2(a), (b), (c), and (d); or 2.1.1.2.2(a), (b), and (e).))~~

~~(a) Enclosures and doors shall be unperforated to a height of 2 000 mm (79 in.) above each floor or landing and above the treads of adjacent stairways. The enclosure shall be unperforated, adjacent to, and for 150 mm (6 in.) on either side of any moving equipment that is within 100 mm (4 in.) of the enclosure.))~~

(b) Partitions between hoistways and machine rooms and control rooms

~~((1) machinery spaces outside the hoistway~~

~~(2) machine rooms~~

~~(3) control spaces outside the hoistway~~

~~(4) control rooms))~~

shall be of solid ~~((or openwork))~~ construction ~~((that meets the requirements of 2.1.1.2.2(d)(1), (2), and (3)))~~. Partitions of solid construction shall be permitted to have openings essential for ropes, drums, sheaves, and other elevator equipment. ~~((Openwork construction shall reject a ball 25 mm (1 in.) in diameter, except where there are openings for ropes, drums, sheaves, and other elevator equipment.~~

~~(c) Openwork enclosures, where used above the 2 000 mm (79 in.) level, shall reject a ball 25 mm (1 in.) in diameter.~~

~~(d) Openwork enclosures shall be~~

~~(1) at least 2.2 mm (0.087 in.) thick wire, if of steel wire grille~~

~~(2) at least 2.2 mm (0.087 in.) thick, if of expanded metal~~

~~(3) so supported and braced as to deflect not over 15 mm (0.6 in.) when subjected to a force of 450 N (100 lbf) applied horizontally at any point))~~

(e) Enclosures shall be permitted to be glass, provided it is laminated glass conforming to ANSI Z97.1, 16 CFR Part 1201~~((, or CAN/CGSB 12.1, whichever is applicable (see Part 9)))~~. Markings as specified in the applicable standard shall be on each separate piece of glass and shall remain visible after installation.

1       **2.1.1.2.3** Entrances shall be in conformance with 2.11, except 2.11.14, 2.11.15, 2.11.16, and  
2       2.11.18.

3       **2.1.1.3 Partially Enclosed Hoistways.** For elevators that are not required to be fully  
4       enclosed by 2.1.1, protection at least 2 400 mm (94.5 in.) high shall be provided on the  
5       hoistway sides that are located 1 500 mm (59 in.) or less from elevator equipment to areas  
6       accessible to other than elevator personnel. Such protection shall comply with 2.1.1.2.

7       **2.1.1.4 Multiple Hoistways.** The number of elevators permissible in a hoistway shall be in  
8       conformance with the building code.

9       **2.1.1.5 Strength of Enclosure.** The hoistway enclosure adjacent to a landing opening shall  
10       be of sufficient strength to maintain, in true lateral alignment, the hoistway entrances.

11       Operating mechanisms and locking devices shall be supported by the building wall, if load-  
12       bearing, or by other building structure. Adequate consideration shall be given to pressure  
13       exerted on hoistway enclosures as a result of windage and elevator operation. In high-rise  
14       buildings of occupancy category III or IV in accordance with Section 1604.5, and in all  
15       buildings that are more than 420 feet (128 m) in building height, hoistway enclosures shall  
16       comply with Section 403.2.3.

17  
18  
19  
20       **3020.2 Private residence elevator hoistways.** Hoistways for private residence elevators shall  
21       comply with Section 3020.1. ASME A17.1, 5.3.1.1.1, 5.3.1.1.1 and 5.3.1.1.2 do not apply.

22       **3020.3 Location of equipment.** Motor controllers, motion controllers and drives shall not be  
23       located in hoistways.  
24  
25  
26  
27  
28

**3020.4 Elevator machine rooms and control rooms.** Elevator controls and machinery other than driving machines and governors shall be located in a room dedicated exclusively to elevator equipment. Listed electrical equipment that serves the machine room is permitted to be installed in machine rooms. Air conditioning equipment is permitted to be installed in machine rooms in accordance with ASME A17.1, 2.8.4.

Elevator equipment and machine rooms shall be enclosed by fire barriers and horizontal assemblies with at least a one-hour fire-resistance rating. Machine rooms in high-rise buildings shall have a fire-resistance rating at least equal to that required for the hoistway. Exterior walls and roofs are not required to have a fire-resistance rating unless required by other sections of this code.

ASME A17.1 sections 2.7.1.1 and 2.7.1.2 are superseded by this section.

**3020.5 Machine room and control room construction**

**3020.5.1 Machine rooms and control rooms for electric elevators.** All machine rooms, and control rooms for electric elevators shall have fire-resistive construction as required by Section 508 and shall comply with ASME A17.1 Section 2.7, Enclosure of Machine Rooms and Machinery Spaces, except 2.7.1.1 and 2.7.1.2.

**3020.5.2 Machine rooms and control rooms for hydraulic elevators.** All machine rooms and control rooms for hydraulic elevators shall have fire-resistive construction as required by Section 3020.4 and shall comply with ASME A17.1 Section 3.7, as amended below:

**ASME 3.7 ((~~Machinery Spaces~~)) Machine Rooms, ((~~Control Spaces~~, and)) Control Rooms.** Machine rooms and ((~~machinery spaces~~)) control rooms for hydraulic elevators

shall conform to 2.7.1 through ~~((2.7.5))~~ 2.7.4, 2.7.6.1, and 2.7.7 through 2.7.9 as amended  
by this code. Machine rooms and control rooms for hydraulic elevators shall comply with  
this section and Section 3020.4.

**ASME 3.7.1 Location of Machine Rooms.** Hydraulic elevator machine and control  
rooms ~~((shall))~~ are permitted to be located overhead, adjacent to, underneath the  
hoistway, or at a remote location. They shall not be located in the hoistway.

Where hydraulic machines and electrical control equipment are located in spaces  
separated from the hoistway enclosure (see 2.1.1 and 3020.1), such spaces shall be  
separated from other parts of the building by enclosures conforming to 2.7.1.2 ~~((and~~  
~~having an access door conforming to 2.7.3.4))~~ as amended by this code.

**3020.6 Working clearances.** The following working clearances shall be provided inside the  
machine room or control room for all elevators.

1. The width of working space in front of controllers shall be the width of the controller or  
30 inches, whichever is greater. The depth of the working space in the direction of access  
shall be not less than 48 inches.
2. The minimum clear space working clearances for free-standing equipment shall be 18  
inches on two sides and between units of controllers, selectors and/or walls or other  
building obstructions. The 18 inch side clearance is permitted to be combined to permit  
36 inches clear on one side only.
3. The minimum space at the rear of controllers with back-wiring, terminals or other  
elements requiring access shall be 36 inches.

4. The working space shall be free of pipes, vents, storage, ducts or any other obstruction.

**Exception:** If approved by the building official, space outside elevator control rooms is permitted to be used to provide working clearance required for the front of controllers for rooms containing only elevator controls. If the space outside the room serves as a means of egress, not more than one-half the required egress width shall overlap the working clearance. If space outside the control room is used to provide working clearance, means shall be provided for protection of the working clearance during alteration, repair and maintenance of elevator equipment. The working clearance shall be located in conditioned space. The room where the controls are located shall comply with all other requirements for control rooms.

**3020.7 Machine rooms or control rooms for private residence elevators.** Private residence elevators shall be provided with a machine room or control room.

**3020.8 Labeling.** Elevator machine and control rooms shall be identified by a permanent label on the door of the room. In buildings with more than one machine room or control room, the label shall identify which cars are served by the equipment in the room.

## SECTION 3021

### NEW INSTALLATIONS - FLOORS

**3021.1 Floors.** All new elevator hoistways, machine rooms and control rooms shall comply with ASME A17.1, 2.1.3.3, Construction of Floors, as amended below. ASME A17.1, 2.1.3.4 is not adopted.

**ASME 2.1.3.3 Construction of Floors.** Floors of hoistways and machine rooms shall ~~((be of concrete or metal construction with or))~~ have a coated concrete or metal surface without



perforations that will resist absorption of oil, grease and similar materials. Control rooms  
and machine rooms shall have floors that cover the entire area of the room. (~~Metal floors~~  
~~shall conform to the following:~~

~~(a) If of bar type grating, the openings between bars shall reject a ball 20 mm (0.8 in.) in~~  
~~diameter.~~

~~(b) If of perforated sheet metal or of fabricated openwork construction, the openings shall~~  
~~reject a ball 25 mm (1 in.) in diameter.))~~

## SECTION 3022

### EQUIPMENT IN HOISTWAYS, MACHINE ROOMS AND CONTROL ROOMS

#### (ASME A17.1 SECTION 2.8)

**3022.1 Prohibited wiring, pipes and ducts.** In accordance with ASME A17.1 Section 2.8 non-elevator electric wiring, pipes and ducts are prohibited in elevator machine rooms, control rooms and hoistways except as otherwise provided in this section. The use of false ceilings and furring does not remove such items from the elevator spaces and shall not be acceptable except as allowed by ASME A17.1, 2.8.2 as amended below.

**3022.2 Amendment to ASME A17.1 2.8.3** All elevator hoistways, machine rooms and control rooms shall comply with ASME A17.1, 2.8.3, as amended below:

**ASME 2.8 Equipment in Hoistways, ~~((Machinery Spaces,))~~ Machine Rooms, ~~((Control Spaces,))~~ and Control Rooms** Only machinery and equipment used directly in connection with the elevator shall be permitted in elevator hoistways, ~~((machinery spaces,))~~ machine rooms, ~~((control spaces,))~~ and control rooms.

### **2.8.3 Pipes, Ducts, Tanks, and Sprinklers**

**2.8.3.1** ~~((Steam and hot water pipes shall be))~~ Pipes conveying gases, vapors or liquids are not permitted to be installed in hoistways, ~~((machinery spaces,))~~ machine rooms, ~~((control spaces,))~~ and control rooms unless necessary for operation or maintenance of the elevator and not used for any other purpose. ~~((for the purpose of heating these areas only, subject to 2.8.3.1.1 through 2.8.3.1.3)).~~

**Exception:** Subject to the approval of the building official, pipes protected with double containment and pipes with threaded or welded joints may be permitted. Pipes shall not be located less than 7 feet above the floor in machine rooms.

~~((2.8.3.1.1 Heating pipes shall convey only low pressure steam [100 kPa (15 psi) or less] or hot water [100° C (212° F) or less].~~

~~**2.8.3.1.2** All risers and return pipes shall be located outside the hoistway. When the machinery space, machine room, control space, or control room is located above the roof of the building, heating pipes for the machinery space, machine room, control space, or control room shall be permitted to be located in the hoistway between the top floor and the machinery space, machine room, control space, or control room.~~

~~2.8.3.1.3 Traps and shutoff valves shall be provided in accessible locations outside the hoistway.))~~

**2.8.3.2** Ducts shall be permitted to be installed in the hoistway, ~~((machinery space,))~~ machine room, ~~((control space,))~~ or control room for the purpose of heating, cooling, ventilating, and venting these areas only and shall not encroach upon the required clearances.

Ducts and electrical conduit are permitted to pass through an elevator machine room or control room if they are separated from the room by construction equal to the rated construction of the room and so located that all required clearances are maintained.

**2.8.3.3** Sprinkler systems conforming to NFPA 13 ~~((or the NBCC, whichever is applicable (see Part 9) ))~~ shall be permitted to be installed in the hoistway, ~~((machinery space,))~~ machine room, ~~((control space,))~~ or control room subject to rules promulgated by the building official.  
~~((2.8.3.3.1 through 2.8.3.3.4.~~

~~**2.8.3.3.1** All risers shall be located outside these spaces. Branch lines in the hoistway shall supply sprinklers at not more than one floor level. When the machinery space, machine room, control space, or control room is located above the roof of the building, risers and branch lines for these sprinklers shall be permitted to be located in the hoistway between the top floor and the machinery space, machine room, control space, or control room.~~

~~**2.8.3.3.2** In jurisdictions not enforcing the NBCC, where elevator equipment is located or its enclosure is configured such that application of water from sprinklers could cause unsafe elevator operation, means shall be provided to automatically disconnect the main line power~~

supply to the affected elevator and any other power supplies used to move the elevator upon  
or prior to the application of water.

(a) This means shall be independent of the elevator control and shall not be self-resetting.

(b) Heat detectors and sprinkler flow switches used to initiate main line elevator power  
shutdown shall comply with the requirements of NFPA 72.

(c) The activation of sprinklers outside of such locations shall not disconnect the main  
line elevator power supply. See also 2.27.3.3.6.

~~2.8.3.3.3~~ Smoke detectors shall not be used to activate sprinklers in these spaces or to  
disconnect the main line power supply.))

**2.8.3.3.4** ((In jurisdictions not enforcing the NBCC, when)) Where sprinklers are installed not  
more than 600 mm (24 in.) above the pit floor, 2.8.3.3.4(a) and (b) apply to elevator electrical  
equipment and wiring in the hoistway located less than 1200 mm (48 in.) above the pit floor,  
except earthquake protective devices conforming to 8.4.10.1.2(d); and on the exterior of the  
car at the point where the car platform sill and the lowest landing hoistway door sill are in  
vertical alignment.

(a) Elevator electrical equipment shall be weatherproof (Type 4 as specified in NEMA  
250).

(b) Elevator wiring, except traveling cables, shall be identified for use in wet locations in  
accordance with the requirements in the Seattle Electrical Code. ((NFPA 70.))

**2.8.3.4** Other pipes or ducts conveying gases, vapors, or liquid and not used in connection  
with the operation of the elevator shall not be installed in any hoistway, ((machinery space,))

1 machine room, ~~((control space,))~~ or control room. Where a ~~((machinery space,))~~ machine  
2 room, ~~((control space,))~~ or control room, or hoistway extend above the roof of a building,  
3 pipes shall be permitted from roof drains to the closest point where they can be diverted out  
4 of this space. Pipes shall be covered to prevent leakage or condensate from entering the  
5 ~~((machinery space,))~~ machine room, ~~((control space,))~~ control room, or hoistway.  
6

7 **2.8.3.5** Where permitted and provided, pipes, drains, and tanks, or similar equipment that  
8 contains liquids, shall not be located directly above the elevator equipment and shall not  
9 encroach upon the required clearances in the hoistway, ~~((machinery space,))~~ machine room,  
10 ~~((control space,))~~ or control room.  
11

## 12 **SECTION 3023**

### 13 **PIT ACCESS (ASME A17.1, 2.2.4)**

14 **3023.1 Access to Pits.** All pits shall comply with ASME A17.1, 2.2.4 as amended below:

15 **ASME 2.2.4 Pit Access.** Safe and convenient access shall be provided to all pits, and shall  
16 conform to 2.2.4.1 through 2.2.4.6.  
17

18 **2.2.4.1** Access shall be by means of the lowest hoistway door or by means of a separate pit  
19 access door.

20 **2.2.4.2** There shall be installed in the pit of each elevator, where the pit extends more than  
21 900 mm (35 in.) below the sill of the pit access door (lowest hoistway door or separate pit  
22 access door), a fixed vertical ladder of noncombustible material, located within reach of the  
23 access door. The ladder is permitted to be retractable or nonretractable. Nonretractable  
24 ladders, where provided, shall conform to 2.2.4.2.1 through 2.2.4.2.6. Retractable ladders,  
25  
26  
27  
28

where provided, shall conform to 2.2.4.2.1 through 2.2.4.2.3 and 2.2.4.2.5 through 2.2.4.8.

When in the extended position, retractable ladders shall conform to 2.2.4.2.4.

**2.2.4.2.1** The ladder shall extend not less than 1 200 mm (48 in.) above the sill of the access door or handgrips shall be provided to the same height.

**2.2.4.2.2** The ladder rungs, cleats, or steps shall be a minimum of 400 mm (16 in.) wide.

When obstructions are encountered, the width shall be permitted to be decreased to less than 400 mm (16 in.). The reduced width shall be as wide as the available space permits, but not less than 225 mm (9 in.).

**2.2.4.2.3** The ladder rungs, cleats, or steps shall be spaced 300 mm (12 in.)  $\pm$  13 mm ( $\pm$  0.5 in.) on center, shall be provided to not less than the height of access door sill, and shall be designed to minimize slipping (e.g. knurling, dimpling, coating with skid-resistant material, etc.).

**2.2.4.2.4** A clear distance of not less than 115 mm (4.5 in.) from the centerline of the rungs, cleats, or steps to the nearest permanent object in back of the ladder shall be provided.

**2.2.4.2.5** Side rails, if provided, shall have a clear distance of not less than 115 mm (4.5 in.) from their centerline to the nearest permanent object.

**2.2.4.2.6** The ladder and its attachments shall be capable of sustaining a load of 135 kg (300 lb.)

**2.2.4.2.7** Retractable ladders that are in the line of movement of the car or counterweight when not fully retracted, shall operate a retractable ladder electrical device (see 2.26.2.38)

1 that shall cause the power to be removed from the elevator driving-machine motor and brake  
2 unless the ladder is in its fully retracted position.

3 **2.2.4.2.8** Retractable ladders shall be capable of being extended, mechanically secured and  
4 unsecured, and retracted from the access door, and

5 (a) the force(s) required to extend a retractable ladder from the fully retracted position to  
6 the extended and mechanically secured position shall not exceed 220 N (50 lbf)  
7

8 (b) after being extended and mechanically secured, a retractable ladder shall remain  
9 secured in the extended position when subjected to a horizontal force not to exceed 2 220 N  
10 (500 lbf)  
11

12 (c) the force(s) required to retract a retractable ladder from its extended position to its  
13 fully retracted position, after being unsecured, shall not exceed 220 N (50 lbf)

14 (d) the ladder shall be mechanically secured when in the retracted position

15 **2.2.4.3** Pit access by a ladder shall not be permitted when the pit floor is more than 3 000  
16 mm (120 in.) below the sill of the access door, except where there is no building floor below  
17 the bottom terminal landing, this height shall be permitted to be greater but not more than  
18 4 200 mm (165 in.).  
19

20 **2.2.4.4** Pits shall be accessible only to elevator personnel.

21 **2.2.4.5** Separate pit door, when provided, shall be subject to the following requirements:  
22

23 (a) If the door swings into the pit, it shall be located so that it does not interfere with  
24 moving equipment.  
25  
26  
27  
28

1 (b) If the door swings out, and the lowest structural or mechanical part, equipment, or  
2 device installed beneath the car platform, except guide shoes or rollers or safety jaw  
3 assemblies, projects below the top of the separate pit access door opening when the car is  
4 level with the bottom terminal landing

5 (1) an electric contact conforming to 2.26.2.26 shall be provided to prevent operation  
6 of the elevator when the door is open

7 (2) the door shall be provided with a vision panel(s) that is glazed with clear wired  
8 glass not less than 6 mm (0.25 in.) thick, will reject a ball 150 mm (6 in.) in diameter,  
9 and have an area of not more than 0.03 m<sup>2</sup> (47 in.<sup>2</sup>).  
10

11 (c) The door shall provide a minimum opening of 750 mm (29.5 in.) in width and ((4  
12 ~~825~~)) 2 032 mm (((72)) 80 in.) in height.

13 (d) The door shall be equipped with a barrier conforming to 2.11.1.2(i), where the door  
14 sill is located more than 300 mm (12 in.) above the pit floor.  
15

16 (e) The door shall be self-closing and provided with a spring-type lock arranged to permit  
17 the door to be opened from inside of the pit without a key. Such doors shall be kept closed  
18 and locked. A key shall be required to unlock the lock from outside the hoistway. The key  
19 shall be of Group 1 Security (see 8.1).  
20

21 (f) Separate pit access doors shall not be located where a person, upon entering the pit,  
22 can be struck by any part of the car or counterweight when either is on its fully compressed  
23 buffer.  
24



1       **2.2.4.6** Means to unlock the access door from inside the pit shall be provided. The means  
2 shall be located

3           (a) when no pit ladder is provided, not more than 1 825 mm (72 in.) vertically above the  
4 pit floor, or

5           (b) when a pit ladder is provided, not more than 1 825 mm (72 in.) vertically above a  
6 rung, cleat, or step. The minimum distance from the top rung, cleat, or step to the top of the  
7 pit ladder or handhold shall not be less than 1 200 mm (48 in.) (see 2.2.4.2.1 and  
8 Nonmandatory Appendix J, Fig. J-1), and

9           (c) with the door in the closed position, in a plane not more than 1 000 mm (39 in.)  
10 horizontally from a rung, cleat, or step of the pit ladder (see Nonmandatory Appendix J, Fig.  
11 J-1).  
12  
13

14 **3023.2 Access to underside of cars.** Access to the underside of cars shall comply with ASME  
15 A17.1, 2.2.8 as amended below:

16       **2.2.8 Access to Underside of Car.** Where the distance from the pit floor to the underside of  
17 the plank channels or slings exceeds 2 100 mm (83 in.), with the car at the lowest landing, a  
18 means shall be permanently installed or permanently stored in the pit to provide access to the  
19 equipment on the underside of the car. When access is provided by means of a working  
20 platform it shall conform to the requirements of 2.7.5.3.2 through 2.7.5.3.6.

21       When working platform inspection operation is provided according to 2.7.5.3.6, in  
22  
23 hoistways containing a single elevator

24           (a) a pit access door is required, or  
25  
26  
27  
28

1 (b) an additional elevator personnel shall be present outside the hoistway when the pit  
2 inspection operation is in effect.

## 3 SECTION 3024

### 4 SHUTOFF VALVE (ASME A17.1, 3.19.4.1)

5 **3024.1 Hydraulic elevator shutoff valve.** All hydraulic elevators shall comply with ASME  
6 A17.1, 3.19.4.1, Shutoff Valve, as amended below:  
7

8 **ASME 3.19.4.1 Shutoff Valve.** A manually operated shutoff valve shall be provided  
9 between the hydraulic machines and the hydraulic jack and shall be located outside the  
10 hoistway and adjacent to the hydraulic machine. An additional shutoff valve may be required  
11 in the pit by WAC 296-96-02425.  
12

## 13 SECTION 3025

### 14 GUARD AT CEILING INTERSECTION (ASME A17.1, 6.1.3.3.11)

15 **3025.1 Escalator guards.** All escalators shall comply with ASME A17.1, 6.1.3.3.11, Guard at  
16 Ceiling Intersection, and the following:  
17

18 Guards shall be provided at any pinching, snagging or wedging points between the handrail,  
19 balustrade and adjacent building components or equipment if such points are within the  
20 clearances delineated in 6.1.3.3.11.

## 21 SECTION 3026

### 22 TEST REPORTS

23  
24 **3026.1 Test reports.** For tests required by Section 3028 and ASME 17.1, Part 8, as amended in  
25 this code, immediately after tests are completed all test results shall be submitted to the building  
26

official for approval on forms furnished by the building official. The submitted results shall be completed and signed by the person performing the tests and shall identify the testing firm. Copies of the completed forms shall be provided to the owner or to the owner's duly-authorized agent.

## SECTION 3027

### ACCEPTANCE INSPECTIONS AND TESTS

**3027.1 Acceptance inspections and tests.** Inspections and tests shall comply with ASME A17.1, 8.10, Acceptance Inspection and Tests, as amended below.

#### ASME 8.10.1 General Requirements for Acceptance Inspections and Tests

##### 8.10.1.1 Persons Authorized to Make Acceptance Inspections and Tests

**8.10.1.1.1** The acceptance inspection shall be made by an inspector employed by the building official ~~((authority having jurisdiction, or by a person authorized by the authority having jurisdiction.))~~

**8.10.1.1.2** The person installing or altering the equipment shall perform all of the tests required by ASME A17.1, 8.10.2 through 8.10.5 in the presence of the inspector specified in 8.10.1.1.1.

~~((**8.10.1.1.3** The inspector shall meet the qualification requirements of the ASME QEI 1. Inspectors and inspection supervisors shall be certified by an organization accredited by ASME in accordance with the requirements of ASME QEI 1.))~~

## SECTION 3028

### PERIODIC INSPECTIONS AND TESTS

**3028.1 Persons authorized to make periodic inspections and witness tests.** Periodic inspection and tests shall comply with WAC 296-96-23610 as it existed on the date this code became effective and ASME A17.1, 8.11 as amended below.

#### **8.11.1 General Requirements for Periodic Inspections and Witnessing of Tests**

~~((8.11.1.1 Persons Authorized to Make Periodic Inspections and Witness Tests. The inspector shall meet the qualification requirements of the ASME QEI 1. Inspectors and inspection supervisors shall be certified by an organization accredited by ASME in accordance with the requirements of ASME QEI 1.))~~

##### **8.11.1.1.1 Periodic Inspections**

(a) Periodic inspections shall be made by an inspector employed by the ~~((authority having jurisdiction))~~ building official or by a person authorized by the ~~((authority having jurisdiction))~~ building official.

~~((b) The inspector shall submit a signed written report to the authority having jurisdiction containing the following information:~~

~~(1) date of inspection(s)~~

~~(2) components or systems that have not been inspected~~

~~(3) Code deficiencies noted during the inspection and a statement as to corrective action taken, if any))~~

##### **8.11.1.1.2 Periodic tests**

(a) Periodic tests as required in 8.6 shall be witnessed by an inspector employed by the  
~~((authority having jurisdiction))~~ building official, or by persons authorized by the ~~((authority~~  
~~having jurisdiction))~~ building official.

~~(((b) The inspector shall submit a signed written report to the authority having jurisdiction~~  
~~containing the following information:~~

~~(1) date of inspection(s)~~

~~(2) type of test(s) performed~~

~~(3) detailed results of the test(s) including but not limited to, speed, governor trip speed,~~  
~~safety slide distance, relief valve setting, escalator/moving walk brake torque setting, etc.~~

~~(4) Code deficiencies noted during the test~~

~~(5) statement as to any corrective action taken))~~

**8.11.1.2 Applicability of Inspection Requirements.** Inspections required by 8.11.2 through  
8.11.5 are to determine that the existing equipment conforms with the following applicable Code  
requirements:

(a) the Code at the time of installation

(b) the Code effective as applicable to and for each alteration

~~(((c) the ASME A17.3 Code, if adopted by the authority having jurisdiction~~

**NOTES (8.11.1.2)**

~~(1) The revised ASME A17.2 (see Preface, ASME Elevator Publications) is a guide for~~  
~~inspections.~~

(2) References to “Items” and “Parts” are indicated in parentheses as a convenient reference to the applicable inspection procedures in ASME A17.2.)

**8.11.1.3 Periodic Inspection and Test Frequency.** The equipment listed in Table 3028 shall be inspected and tested at the intervals specified in Table 3028. ((The frequency of periodic inspections and tests shall be established by the authority having jurisdiction.))

NOTE: Recommended intervals for periodic inspections and tests can be found in ((Nonmandatory Appendix N)) Table 3028.

**8.11.1.4 Installation Placed Out of Service.** Periodic inspections and tests shall not be required when an installation is placed “out of service”:

(a) as defined by the ((authority having jurisdiction)) building official; or

(b) when an installation whose power feed lines have been disconnected from the mainline disconnect switch; and

(1) an electric elevator, dumbwaiter, or material lift whose suspension ropes have been removed, whose car and counterweight rest at the bottom of the hoistway, and whose hoistway doors have been permanently barricaded or sealed in the closed position on the hoistway side;

(2) a hydraulic elevator, dumbwaiter, or material lift whose car rests at the bottom of the hoistway; when provided with suspension ropes and counterweight, the suspension ropes have been removed and the counterweight rests at the bottom of the hoistway; whose pressure piping has been disassembled and a section removed from the premises and whose hoistway doors are permanently barricaded or sealed in the closed position on the hoistway side; or

(3) an escalator or moving walk whose entrances have been permanently barricaded.

**8.11.1.5 Making Safety Devices Ineffective.** No person shall at any time make any required safety device or electrical protective device ineffective, except where necessary during tests and inspections. Such devices shall be restored to their normal operating condition in conformity with the applicable requirements prior to returning the equipment to service (see 2.26.7).

**8.11.1.6 DELETED**

**REDESIGNATED AS 8.6.1.7.3**

**8.11.1.7 Unique or Product-Specific Procedures or Methods.** Where unique or product-specific procedures or methods are required to inspect or test equipment, such procedures or methods shall be provided by the manufacturer or installer [see 8.6.1.2.1(e)].

**3028.2 Category Five tests.** Elevators shall be subject to five-year inspection test requirements in accordance with Table 3028, Periodic Test Requirements – Category Five, except that safety and governor systems of cars operating on wood guide rails shall be tested by tripping the governor by hand with rated load in the car, and the car at rest.

**3028.3 Cleaning and testing of escalators and moving walks.** In addition to the periodic inspection and tests specified in Table 3028, escalator and moving walk trusses and pans shall be cleaned every 24 months.

**3028.4 Step/skirt test.** The step/skirt performance index test specified in 8.6.8.15.19 is required for all periodic escalator tests at intervals specified in Table 3028.

**Table 3028 Inspection and Test Intervals**

**Note: Intervals are specified in months; sections reference ASME A17.1 unless otherwise specified**

		Periodic Tests									
		Periodic Inspections		Category One		Category Three		Category Five		Other	
Section	Equipment Type	Requirement	Interval	Requirement	Interval	Requirement	Interval	Requirement	Interval	Requirement	Interval
8.11.2	Electric elevators	8.11.2.1	12	8.6.4.19	12	N/A	N/A	8.6.4.20	60		
8.11.3	Hydraulic elevators	8.11.3.1	12	8.6.5.14	12	8.6.5.15	36	8.6.5.16	60		
8.11.4; SBC 3028	Escalators & moving walks	8.11.4.1	12	8.6.8.15	24	N/A	N/A	N/A	N/A	SBC 3028	24
8.11.5.3	Hand elevators	8.11.2.1	12	8.6.4.19	12	N/A	N/A	8.6.4.20, 8.6.5.16	60		
8.11.5.4	Dumbwaiters	8.11.2.1, 8.11.3.1	12	8.6.4.19, 8.6.5.14	12	8.6.5.15	36	8.6.4.20, 8.6.5.16	60		
8.11.5.5	Material lifts and dumbwaiters with automatic transfer devices	8.11.2.1, 8.11.3.1	12	8.6.4.19, 8.6.5.14	12	8.6.5.15		8.6.4.20, 8.6.5.16	60		
8.11.5.6	Special purpose personnel elevators	8.11.2.1, 8.11.3.1	12	8.6.4.19, 8.6.5.14		8.6.5.15		8.6.4.20, 8.6.5.16	60		
8.11.5.7	Inclined	8.11.2.1,	12	8.6.4.19,		8.6.5.15		8.6.4.20,	60		



				Periodic Tests							
		Periodic		Category One		Category Three		Category Five		Other	
		Inspections									
Section	Equipment Type	Requirement	Interval	Requirement	Interval	Requirement	Interval	Requirement	Interval	Requirement	Interval
	elevators	8.11.3.1		8.6.5.14				8.6.5.16			
	Screw- column	8.11.2.1,		8.6.4.19,				8.6.4.20,			
8.11.5.9	elevators	8.11.3.1	12	8.6.5.14		8.6.5.15		8.6.5.16	60		
	Rooftop	8.11.2.1,		8.6.4.19,				8.6.4.20,			
8.11.5.10	elevators	8.11.3.1	12	8.6.5.14		8.6.5.15		8.6.5.16	60		
	Rack & pinion	8.11.2.1,		8.6.4.19,				8.6.4.20,			
8.11.5.11	elevators	8.11.3.1	12	8.6.5.14		8.6.5.15		8.6.5.16	60		
	Limited use/limited application	8.11.2.1,		8.6.4.19,				8.6.4.20,			
8.11.5.12	elevators	8.11.3.1	12	8.6.5.14		8.6.5.15		8.6.5.16	60		

Section 28. The following sections of Chapter 31 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 31

### SPECIAL CONSTRUCTION

\*\*\*

## SECTION 3102

### MEMBRANE STRUCTURES

\*\*\*

**3102.8 Inflation systems.** Air-supported and air-inflated structures shall be provided with primary and auxiliary inflation systems to meet the minimum requirements of Sections 3102.8.1 through 3102.8.3.

**3102.8.1 Equipment requirements.** This inflation system shall consist of one or more blowers and shall include provisions for automatic control to maintain the required inflation pressures. The system shall be so designed as to prevent overpressurization of the system.

**3102.8.1.1 Auxiliary inflation system.** In addition to the primary inflation system, in buildings exceeding 1,500 square feet (140 m<sup>2</sup>) in area, an auxiliary inflation system shall be provided with sufficient capacity to maintain the inflation of the structure in case of primary system failure. The auxiliary inflation system shall operate automatically when there is a loss of internal pressure and when the primary blower system becomes inoperative.

**3102.8.1.2 Blower equipment.** Blower equipment shall meet all of the following requirements:

1 1. Blowers shall be powered by continuous-rated motors at the maximum power required for any  
2 flow condition as required by the structural design.

3 2. Blowers shall be provided with inlet screens, belt guards and other protective devices as  
4 required by the *building official* to provide protection from injury.

5 3. Blowers shall be housed within a weather-protecting structure.

6 4. Blowers shall be equipped with backdraft check dampers to minimize air loss when  
7 inoperative.

8 5. Blower inlets shall be located to provide protection from air contamination. The location of  
9 inlets shall be *approved*.

10 **3102.8.2 Legally required standby Standby power system.** Wherever an auxiliary inflation  
11 system is required, an *approved* legally required standby power(~~((generating))~~) system shall be  
12 provided. The system shall be equipped with a suitable means for automatically starting the  
13 generator set upon failure of the normal electrical service and for automatic transfer and  
14 operation of all of the required electrical functions at full power within 60 seconds of such  
15 service failure. The legally required standby Standby power system shall be capable of operating  
16 independently for a minimum of 4 hours.

17 **3102.8.3 Support provisions.** A system capable of supporting the membrane in the event of  
18 deflation shall be provided for in air-supported and air-inflated structures having an *occupant*  
19 *load* of 50 or more or where covering a swimming pool regardless of *occupant load*. The support  
20 system shall be capable of maintaining membrane structures used as a roof for Type I  
21 construction not less than 20 feet (6096 mm) above floor or seating areas. The support system  
22  
23  
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25  
26

shall be capable of maintaining other membranes at least 7 feet (2134 mm) above the floor,  
seating area or surface of the water.

## SECTION 3103

### TEMPORARY STRUCTURES

**3103.1** See Section 106.13 (~~General. The provisions of this section shall apply to structures erected for a period of less than 180 days. Tents and other membrane structures erected for a period of less than 180 days shall comply with the *International Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.~~

**3103.1.1 Permit required.** ~~Temporary structures that cover an area in excess of 120 square feet (11.16 m<sup>2</sup>), including connecting areas or spaces with a common means of egress or entrance which are used or intended to be used for the gathering together of 10 or more persons, shall not be erected, operated or maintained for any purpose without obtaining a permit from the building official.~~

**3103.2 Construction documents.** ~~A permit application and construction documents shall be submitted for each installation of a temporary structure. The construction documents shall include a site plan indicating the location of the temporary structure and information delineating the means of egress and the occupant load.~~

**3103.3 Location.** ~~Temporary structures shall be located in accordance with the requirements of Table 602 based on the fire resistance rating of the exterior walls for the proposed type of construction.~~

~~**3103.4 Means of egress.** Temporary structures shall conform to the *means of egress* requirements of Chapter 10 and shall have a maximum *exit access* travel distance of 100 feet (30 480 mm).))~~

## SECTION 3104

### PEDESTRIAN WALKWAYS AND TUNNELS

\*\*\*

**3104.6 Public way.** *Pedestrian walkways* over a *public way* shall also comply with Chapter 32 and the Street Use Ordinance, *Seattle Municipal Code Title 15*.

\*\*\*

## SECTION 3105

### AWNINGS AND CANOPIES

~~((**3105.1 General.** *Awnings* or canopies shall comply with the requirements of this section and other applicable sections of this code.~~

~~**3105.2 Definition.** The following term shall, for the purposes of this section and as used elsewhere in this code, have the meaning shown herein.~~

~~**RETRACTABLE AWNING.** A retractable *awning* is a cover with a frame that retracts against a building or other structure to which it is entirely supported.~~

~~**3105.3 Design and construction.** *Awnings* and canopies shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. *Awnings* shall have frames of~~

~~noncombustible material, fire-retardant treated wood, wood of Type IV size, or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.~~

~~**3105.4 Canopy materials.** Canopies shall be constructed of a rigid framework with an approved covering that meets the fire propagation performance criteria of NFPA 701 or has a flame spread index not greater than 25 when tested in accordance with ASTM E 84 or UL 723.))~~

**3105.1 Scope.** All awnings and canopies are subject to the requirements of this section. Awnings and canopies containing electrical wiring and light fixtures are also subject to the Seattle Electrical Code. Awnings and canopies over a public place shall comply with the Street Use Ordinance (Title 15, Seattle Municipal Code).

**3105.2 DEFINITIONS.** For the purposes of this chapter, certain terms are defined as follows:

**AWNING.** A protective covering with a nonrigid surface projecting from a building.

**AWNING SIGN.** A sign applied to the surface of an awning or canopy.

**FIRE-RETARDANT COVERING.** Material with a flame spread rating of less than 15 when tested to ASTM E 84.

**SIGN.** See Section 3107.3.

**VENEER.** See Section 1402.1.

### **3105.3 Permits.**

**3105.3.1 Permits required.** No awning or canopy shall be erected, constructed, altered or structurally revised without a permit issued by the building official, except as specifically exempted in Section 106.2. A sign/awning permit shall be required for an awning or canopy

specific to any business entity. A single permit may be issued for a single awning or canopy which serves a multi-tenant building. A single permit may be issued for all awning signs for each business entity installed concurrently. Awning signs for separate business entities shall have a separate sign permit whether or not located on a separate awning. Subsequent installation of an awning, canopy or awning sign shall require a separate permit. Painting, cleaning, repair and other maintenance does not require a permit unless a structural change is made or the awning is covered with new fabric.

**3105.3.2 Permit application.** To obtain a permit required by this chapter, the applicant shall file an application which shall include the following:

1. The location of the proposed awning or canopy on the building;
2. Plans or drawings and specifications;
3. Signature of the building owner or an authorized agent;
4. Permit fee as specified in the Fee Subtitle.

**3105.4 Maintenance.** All awnings and canopies, together with their supports, braces and anchors, shall be kept in good repair and in a proper state of preservation. The surface of all awnings and canopies shall be kept clean and protected with a sealer-type solution. The building official is authorized to order the removal of any awning or canopy not properly maintained or no longer in use and may revoke the permit.

**3105.5 Materials.** Awnings shall have approved fire-retardant coverings. Frames shall be of materials allowed for the type of construction of the building, except that aluminum frames are allowed with all construction types.

**3105.6 Welding.** All structural welding shall conform to the requirements of Chapter 20 for aluminum and Chapter 22 for steel.

**3105.7 Electric signs and lights.** No electric sign, including a neon assembly, shall be attached to, or located on, any part of the frame of an awning. Where light fixtures are attached to an awning or canopy, adequate bracing shall be designed and installed to sustain the additional loads imposed by the weight of the fixtures. Lamps shall be located at least 12 inches (305 mm) from combustible material.

**3105.8 Obstruction of exits, light and ventilation.** No portion of the surface or support of an awning or canopy, including a retracted awning, shall interfere with the free use of a fire escape, exit or standpipe.

Awnings and canopies shall not reduce the light or ventilation to any occupancy below requirements of Chapter 12 of this code.

**3105.9 Location.** All portions of awnings and canopies shall be at least 8 feet (2438 mm) above any walking surface immediately below. All portions of awnings and canopies located over public property shall be at least 8 feet (2438 mm) above grade and at least 2 feet (610 mm) from the curb. Awnings and canopies shall be located where they will not obstruct, obscure or interfere with any publicly maintained street tree, streetlight or utility pole.

**3105.10 Supports.** The supports for awnings and canopies shall be located on private property.

**Exception:** Where approved by the Director of Transportation, stanchions for awnings located at the entrance to buildings are permitted to be installed on public property if they are



located in line with other street furniture. Individual stanchions shall have a cross sectional dimension or diameter no greater than 6 inches (152 mm).

**3105.11 Drainage.** Awnings and canopies shall be provided with conductors for water which shall drain back to the building line and be connected to a sewer or, if approved by the Director of Seattle Public Utilities, to a dry well or under a sidewalk to a gutter.

**Exception:** Awnings and canopies are permitted to drain away from the building line, provided the water drains uniformly over the edge. The upper surface of canopies shall be sloped a minimum of 1 unit vertical in 48 units horizontal (2 percent slope). Awnings and canopies complying with this exception are permitted to drain onto the public right of way.

**3105.12 Design loads.** Awnings and canopies shall be designed and constructed to resist all forces to which they are subject as specified in Chapter 16.

**3105.13 Pitch.** The upper surface of all awnings shall have a pitch of at least 30 degrees (0.52 rad) from the horizontal. The building official is authorized to approve awnings with a smaller pitch when the design is prepared by a licensed structural engineer.

**3105.14 Attachment of awnings.** All awnings attached to masonry, concrete or steel shall be safely secured with steel anchors and bolts, or approved rated expansion bolts of sufficient size and anchorage to support the loads safely. No support or attachment for an awning or canopy shall be connected to, supported by, or fastened to exterior veneer.

**3105.15 Size.** Where an awning or canopy is located at an exit door from a stairway or exit passageway that is fire-resistance- rated, the distance the awning or canopy projects from the

building shall be no more than one-half the distance from the walking surface to the lowest point  
of the bottom of the awning or canopy.

## SECTION 3106

### ((MARQUEES))

#### No requirements

~~((3106.1 General. Marquees shall comply with this section and other applicable sections of this code.~~

~~**3106.2 Thickness.** The maximum height or thickness of a marquee measured vertically from its lowest to its highest point shall not exceed 3 feet (914 mm) where the marquee projects more than two thirds of the distance from the property line to the curb line, and shall not exceed 9 feet (2743 mm) where the marquee is less than two thirds of the distance from the property line to the curb line.~~

~~**3106.3 Roof construction.** Where the roof or any part thereof is a skylight, the skylight shall comply with the requirements of Chapter 24. Every roof and skylight of a marquee shall be sloped to downspouts that shall conduct any drainage from the marquee in such a manner so as not to spill over the sidewalk.~~

~~**3106.4 Location prohibited.** Every marquee shall be so located as not to interfere with the operation of any exterior standpipe, and such that the marquee does not obstruct the clear passage of stairways or exit discharge from the building or the installation or maintenance of street lighting.~~

~~**3106.5 Construction.** A marquee shall be supported entirely from the building and constructed of noncombustible materials. Marquees shall be designed as required in Chapter 16. Structural members shall be protected to prevent deterioration.))~~

## SECTION 3107

### SIGNS

~~((**3107.1 General.** Signs shall be designed, constructed and maintained in accordance with this code.))~~

**3107.1 Purpose.** It is the purpose of this chapter to safeguard the life, health, property and welfare of the citizens of the City by regulating and controlling the design, quality of materials, construction, location, illumination and maintenance of signs and sign structures visible from any portion of public property or rights-of-way.

#### **3107.2 Enforcement.**

**3107.2.1 Authority.** The Director of Transportation and the building official shall enforce the provisions of this chapter as it relates to signs over public places as defined in Section 15.02.046 of the Seattle Municipal Code.

**3107.2.2 Other requirements.** All signs shall comply with any additional sign regulations imposed by the *Land Use Code*, and Title 15, Seattle Municipal Code, Street Use Ordinance, as amended, and other ordinances of the City.

**3107.3 Definitions.** For the purposes of this chapter, certain terms shall be defined as follows:

**DISPLAY SURFACE.** The area of a sign structure used to display the advertising message.

**ELECTRIC SIGN.** Any sign containing electrical wiring, but not including signs illuminated by an exterior light source.

**NONSTRUCTURAL TRIM.** The moldings, battens, caps, nailing strips, latticing or cutouts which are attached to the sign structure.

**ON-PREMISE SIGN.** A sign or sign device used solely by the business establishment on the lot where the sign is located which displays either 1) commercial messages which are strictly applicable only to a use of the premises on which it is located, including signs or sign devices indicating the business transacted, principal services rendered, goods sold or produced on the premises, name of the business, and name of the person, firm or corporation occupying the premises; or 2) noncommercial messages. This definition shall not include signs located within a structure except those signs oriented so as to be visible through a window.

**PROJECTING SIGN.** A sign other than a wall sign, which projects from and is supported by a wall of a building or structure.

**PROJECTION.** The distance by which a sign extends over public property or beyond the building line.

**ROOF SIGN.** A sign erected upon or above a roof or parapet of a building or structure.

**SIGN.** Any medium, including its structure and component parts, which is used or intended to be used to attract attention to the subject matter for advertising, identification or informative purposes.

**SIGN STRUCTURE.** Any structure which supports or is designed to support any sign as defined in this chapter. A sign structure may be a single pole or may be an integral part of the building.

**WALL SIGN.** Any sign attached to and supported by a wall of a building or structure, with the exposed face of the sign on a plane parallel to the plane of the wall or any sign painted directly on a building.

**3107.4 Permits.**

**3107.4.1 Permits required.** A permit issued by the building official is required before any sign is erected, re-erected, constructed, painted, posted, applied, altered, structurally revised or repaired, except as provided in this chapter. A permit is required for existing signs when a different business entity uses the sign. Whether or not a permit is required, the owner of any sign is responsible for erection and maintenance of the sign and for compliance with the provisions of this chapter and all other laws and ordinances regulating signs.

**3107.4.2 Signs exempt from permits.** Permits are not required for sign activity listed in Section 3107.4.2.

1. Signs that are located within the interior of the building and that are not visible from the public right-of-way unless:

1.1. The sign is mounted within an interior shared pedestrian mall of a multi-tenant retail facility; located over or adjoining the pedestrian walking surface; and

1.2. When any individually mounted element of the sign is greater than 5 square feet (0.46 m<sup>2</sup>) in area or when it is an electric sign;

2. The changing of the advertising copy or message on lawfully erected signs specifically designed for the use of replaceable copy unless a different business entity uses the sign;
3. Normal maintenance such as painting, repainting, cleaning and repairing, unless a structural or electrical change is made or a different business entity uses the sign;
4. On-premises signs that are nonelectrical and nonilluminated with an aggregate area of 5 square feet (0.46 m2) or less located entirely on private property;
5. Signs for public facilities indicating danger and/or providing service or safety information.

**3107.4.3 Permits not required for temporary signs.** The erection, re-erection, construction, posting or placement of temporary signs permitted by Section 23.55.012 of the *Land Use Code* do not require a temporary sign permit. The owner of any such sign is responsible for compliance with the provisions of this section and other applicable laws or ordinances regulating signs. Permanent sign permits are required for signs that do not comply with the standards for temporary signs found in Section 23.55.012 of the *Land Use Code* when required by Section 3107.4.1.

**3107.4.4 Number of signs.** Temporary signs permitted by Section 23.55.012 of the *Land Use Code* and signs not requiring a permit as specified in Section 3107.4.1 are not included as part of the maximum number of signs permitted under Chapter 23.55 of the *Land Use Code*.

**3107.4.5 Attachments to signs.** Ancillary devices, displays and attachments not originally a part of the sign for which a permit was issued shall not be added to an existing sign except as

provided in this chapter, Chapter 23.55 of the *Land Use Code* and pursuant to another permit issued by the building official.

**3107.5 Permit application.** To obtain a sign permit, the applicant shall file an application which shall:

1. Clearly indicate the precise location of the proposed sign;

2. Be accompanied by adequate plans and specifications;

**Exception:** The building official is authorized to waive submission of plans and specifications when the structural aspect is of minor importance.

3. Be signed by the owner of the premises or an authorized agent; and

4. Be accompanied by the permit fee specified in the Fee Subtitle.

**3107.6 Inspections.** All signs regulated by this chapter are subject to inspection and periodic reinspection by the building official. All footings shall be inspected by the building official. All signs containing electrical wiring are subject to the *Seattle Electrical Code*. Refurbished, used electrical signs and field-assembled electrical signs shall be inspected by the building official.

**3107.7 Maintenance and closure of business.**

**3107.7.1 Maintenance.** The owners of signs shall keep their signs, together with all of their supports, braces, guys and anchors, in good repair and in a proper state of preservation. The owners shall keep display surface of all signs neatly painted or posted at all times. The building official is authorized to order the removal of all signs not properly maintained or no longer in use by the owner, occupant or lessee, and the permit therefore may be canceled.

**3107.7.2 Closure of business — abandoned signs.** Upon the closure and vacation of a business or activity, the operator of the business or activity is responsible for the removal of all signs relating to the business or activity within 90 days from the date of such closure. If the operator of the business or activity fails to remove the signs within the designated time period and the business or activity is not reoccupied or resumed during the 90-day period, then the owner of the premises upon which the signs are located is responsible for the removal of the signs within 180 days from the date of closure and vacation of the premises.

**Note:** Electrical permits are required for branch circuits supplying power to electric signs pursuant to the *Seattle Electrical Code*, and street use permits shall be obtained for signs over any public place pursuant to the Street Use Ordinance, Seattle Municipal Code Chapter 15. Review by the Department of Neighborhoods is required for signs located on the site of a historic building, or in a landmark or special review district.

**Note:** A permit is required for existing signs when a different business entity uses the sign. See Section 3107.4.

**3107.8 Nonconforming signs.** A nonconforming sign is a sign or any portion thereof which, because of its location or construction, could not lawfully be reconstructed in its present location.

A nonconforming sign shall have no additions or structural or electrical alterations thereto.

**Exception:** Minor additions or alterations which the building official finds necessary in the interest of safety.

**3107.9 General requirements.**



**3107.9.1 General.** All signs shall conform to the requirements of this section.

**3107.9.2 Clearance from high voltage power lines.** Signs shall be located no closer than 3 feet (914 mm) horizontally or 8 feet (2438 mm) vertically from overhead electrical conductors which are energized at 750 volts or less and not less than 10 feet (3048 mm) in any direction from overhead conductors energized at more than 750 volts. The term “overhead conductors” as used in this section means any electrical conductor, either bare or insulated, installed above the ground except such conductors as are enclosed in iron pipe or other material covering of equal strength.

**3107.9.3 Clearance from fire escapes, exits or standpipes.** No sign or sign structure shall be erected in such a manner that any portion of its surface or supports will interfere in any way with the free use of any fire escape, exit or standpipe.

**3107.9.4 Obstruction of openings.** No sign shall obstruct any openings to such an extent that light or ventilation is reduced to a point below that required by this code or the *International Mechanical Code*. Signs erected within 5 feet (1524 mm) of an exterior wall in which there are openings within the area of the sign shall be constructed of noncombustible material or approved plastics.

**3107.9.5 Supporting members.** Signs mounted on and attached to buildings shall be so designed and mounted that secondary structural members shall be incorporated into and become a part of the sign display. Exterior bracing such as angle irons, guy wires, cables and similar devices are permitted only where no other reasonable method of fastening consistent with safety is possible.

**3107.9.6 Nondisplay surfaces.** If a sign is visible from more than one direction, all areas not intended as display surfaces, including the back and sides, shall be designed so that such areas

are given a finished and pleasing appearance with the display surfaces visible only from the directions that they are intended to be seen.

**3107.9.7 Label.** Every permanent sign shall display the name of the sign erector.

**3107.10 Design.**

**3107.10.1 General.** Signs and sign structures shall be designed and constructed to resist all forces to which they are subject as specified in Chapter 16 and this section. All signs shall be designed and installed to transfer all forces directly to the structural frame of the building or structure. The overturning moment produced from lateral forces shall in no case exceed two thirds of the dead load resisting moment. Uplifts due to overturning shall be adequately resisted by proper anchorage to the ground or to the structural frame of the building. The weight of earth superimposed over footings is permitted to be used in determining the dead load resisting moment. Such earth shall be carefully placed and thoroughly compacted.

**3107.10.2 Wind and seismic loads.** Signs and sign structures shall be designed and constructed to resist wind and seismic forces as specified in Chapter 16 of this code.

**3107.10.3 Allowable stresses.** The design of wood, concrete, steel or aluminum members shall conform to the requirements of Chapters 19, 20, 22 and 23. Loads, both vertical and horizontal, exerted on the soil shall not produce stresses exceeding those specified in Chapter 16 of this code.

The working stresses of wire rope and its fastenings shall not exceed 25 percent of the ultimate strength of the rope or fasteners.

**3107.11 Construction.**

**3107.11.1 General.** The supports for all signs and sign structures shall be placed in or upon private property and shall be securely built, constructed, and erected in conformance with the requirements of this chapter. All structural welding on signs and sign structures shall conform to the requirements of Chapter 20 for aluminum and Chapter 22 for steel.

**3107.11.2 Materials.** Materials of construction for signs and sign structures shall be of quality and grade as specified for buildings in this code.

**3107.11.2.1 Plastics.** All plastics used in signs shall be approved plastics as defined in Chapter 26. Sections of approved plastics on wall signs shall not exceed 150 square feet (13.9 m<sup>2</sup>) in area.

**Exceptions:**

1. Outside the Fire District the area of approved plastics is permitted to be increased by 50 percent. See Section 401.2 for the definition of the Fire District.

2. Sections of approved plastics on signs other than wall signs are permitted to be of unlimited area if approved by the building official.

Sections of approved plastics on wall signs shall be separated 3 feet (914 mm) laterally and 6 feet (1829 mm) vertically by the required exterior wall construction.

**Exception:** Sections of approved plastics on signs other than wall signs need not be separated if approved by the building official.

**3107.11.2.2 Other materials.** In all signs and sign structures the materials and details of construction shall, in the absence of specified requirements, conform to the following:

1. Structural steel shall be of such quality as to conform with Chapter 22. Secondary members in contact with or directly supporting the display surface are permitted to be formed of light gauge steel provided such members are designed in accordance with the specifications of the design of light gauge steel as specified in Chapter 22 and shall be galvanized. Secondary members, when formed integrally with the display surface, shall not be less than No. 24 gauge in thickness. When not formed integrally with the display surface, the minimum thickness of the secondary members shall be No. 12 gauge.

The minimum thickness of hot-rolled steel members furnishing structural support for signs shall be 1/4 inch (6.4 mm) except that if galvanized, such members shall not be less than 1/8 inch (3.2 mm) thick. Steel pipes shall be of such quality as to conform with Chapter 22. Steel members are permitted to be connected with one galvanized bolt provided the connection is adequate to transfer the stresses in the members.

2. Anchors and supports, when of wood and embedded in the soil, or within 6 inches (152 mm) of soil, shall be of all heartwood of a durable species or shall be pressure-treated with an approved preservative. Such members shall be marked or branded by an approved agency.

**3107.11.2.3 Nonstructural trim.** Nonstructural trim and portable display surfaces are permitted to be of wood, metal, approved plastics or any combination thereof.

**3107.11.2.4 Approval of materials.** The building official is permitted to require that sufficient technical data be submitted to substantiate the proposed use of any materials and is permitted to approve their use if it is determined that the evidence submitted is satisfactory for the use intended.

**3107.11.3 Restrictions in the Fire District.** In the Fire District all signs and sign structural members shall be constructed of noncombustible materials. See Section 401.2 for the definition of the Fire District.

**Exceptions:**

1. Regardless of fire-resistive requirements for exterior walls, certain elements of signs fronting on streets or yards having a width of 50 feet (15 240 mm) are permitted to be constructed as follows: Wood veneer of boards not less than 1 inch (25 mm) nominal thickness or exterior type wood structural panels not less than 3/8 inch (9.5 mm) nominal thickness is permitted to be applied to walls provided the veneer does not exceed 15 feet (4572 mm) above grade, and further provided such veneer shall be placed either directly against noncombustible surfaces or furred out from such surfaces not to exceed 15/8 inches (41 mm) with all concealed spaces fireblocked as provided by this code.

2. The display surface of a projecting sign is permitted to be of wood provided such sign is not more than 42 square feet (3.9 m2) in area, is constructed of materials not less than 2 inches (51 mm) in nominal thickness and is not over 15 feet (4572 mm) in height, from ground level to the top of the sign.

3. Nonstructural trim as in Section 3107.11.2.3.

**3107.11.4 Anchorage.** Members supporting unbraced signs shall be so proportioned that the bearing loads imposed on the soil in either direction, horizontal or vertical, shall not exceed the safe values. Braced ground signs shall be anchored to resist the specified wind or seismic load acting in any direction. Anchors and supports shall be designed for safe bearing loads on the soil

1 and for an effective resistance to pull-out amounting to a force 25 percent greater than the  
2 required resistance to overturning. Signs attached to masonry, concrete or steel shall be safely  
3 and securely fastened thereto by means of metal anchors, bolts or approved expansion screws of  
4 sufficient size and anchorage to support safely the loads applied. No wooden blocks or plugs or  
5 anchors with wood used in connection with screws or nails is considered proper anchorage  
6 except in the case of signs attached to wood framing.

7  
8 No lead plugs or anchors shall be used to support signs. No anchor or support of any sign shall be  
9 connected to or supported by an unbraced parapet wall unless the wall is designed or braced for  
10 the added forces.

11  
12 **3107.12 Roof signs.**

13 **3107.12.1 General.** Roof signs shall be constructed of noncombustible material except as  
14 specified in Section 3107.11. When constructed on a building, the sign shall be thoroughly  
15 secured and anchored to the frame of the building on which it is constructed and erected.

16 **3107.12.2 Clearance and access.** A passage clear of all obstructions shall be left under or  
17 around, and immediately adjacent to, signs exceeding a height of 4 feet (1219 mm) above the  
18 roof. Such passage shall not be less than 3 feet (914 mm) wide and 4 feet (1219 mm) high and  
19 shall be at parapet or roof level. There shall be one such passage or access opening as follows:  
20  
21 1. For each roof sign upon a building.  
22 2. An access opening for every 50 lineal feet (15 240 mm) of horizontal roof sign extension.  
23 3. Within 20 feet (6096 mm) of walls and parapets when roof signs are at right angles to a face of  
24 the building.

**3107.13 Electric signs.**

**3107.13.1 Construction.** Electric signs shall be constructed of noncombustible materials except as provided in Section 3107.11. The enclosed shell of electric signs shall be watertight except that service holes fitted with covers shall be provided into each compartment of such signs.

**3107.13.2 Installation.** Electrical equipment used in connection with display signs shall be installed in accordance with the *Seattle Electrical Code*.

**3107.13.3 Display surfaces.** Display surfaces of wood shall not be used in electric signs.

**SECTION 3108**

**TELECOMMUNICATION AND BROADCAST TOWERS**

**[W] 3108.1 General.** Towers shall be designed and constructed in accordance with the provisions of TIA-222. Section 2.6.6.2, the extent of Topographic Category 2, escarpments, shall extend 16 times the height of the escarpment. Towers shall be designed for seismic loads. The exceptions to the requirement of seismic design listed in Section 2.7.3 shall not apply. Class I structures per Table 2-1 of the standard may be exempted from seismic design, if approved by the building official.

**Exception:** Single free-standing poles used to support antennas not greater than 75 feet (22,860 mm), measured from the top of the pole to grade, shall not be required to be noncombustible.

**Exception:** Single free-standing poles used to support antennas not greater than 75 feet (22 860 mm), measured from the top of the pole to grade, shall not be required to be noncombustible.

**3108.2 Location and access.** Towers shall be located such that guy wires and other accessories shall not cross or encroach upon any street or other public space, or over above-ground electric

1 utility lines, or encroach upon any privately owned property without the written consent of the  
2 owner of the encroached-upon property, space or above-ground electric utility lines. Towers shall  
3 be equipped with climbing and working facilities in compliance with TIA-222. Access to the  
4 tower sites shall be limited as required by applicable OSHA, FCC and EPA regulations.

## 5 **SECTION 3109**

### 6 **SWIMMING POOL ENCLOSURES AND SAFETY DEVICES**

8 \*\*\*

9 **[W] 3109.3 Public swimming pools.** Public swimming ~~((pools))~~ pool barriers are regulated by  
10 WAC 246-260-031(4). ~~((shall be completely enclosed by a fence at least 4 feet (1290 mm) in~~  
11 ~~height or a screen enclosure. Openings in the fence shall not permit the passage of a 4 inch-~~  
12 ~~diameter (102 mm) sphere. The fence or screen enclosure shall be equipped with self closing and~~  
13 ~~self latching gates.))~~

15 \*\*\*

16 Section 29. The following sections of Chapter 32 of the International Building Code,  
17 2009 Edition, are amended as follows:  
18

## 19 **CHAPTER 32**

### 20 **ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY**

## 21 **SECTION 3201**

### 22 **GENERAL**

24 \*\*\*



~~((3201.4 Drainage. Drainage water collected from a roof, awning, canopy or marquee, and condensate from mechanical equipment shall not flow over a public walking surface.))~~

**3201.4 Approval of encroachments.** All encroachments of buildings and structures on, over or under sidewalks, streets and other public places are subject to approval by the Director of Transportation and the building official. Encroachments shall comply with this code and other applicable codes including Seattle Municipal Code, Title 15.

**3201.5 Doors.** No door in any position shall project over public property.

**3201.6 Materials.** Structures and appendages regulated by this code shall be constructed of materials specified in this code for structures on private property.

## **((SECTION 3202**

### **ENCROACHMENTS**

~~**3202.1 Encroachments below grade.** Encroachments below grade shall comply with Sections 3202.1.1 through 3202.1.3.~~

~~**3202.1.1 Structural support.** A part of a building erected below grade that is necessary for structural support of the building or structure shall not project beyond the *lot lines*, except that the footings of street walls or their supports which are located at least 8 feet (2438 mm) below grade shall not project more than 12 inches (305 mm) beyond the street *lot line*.~~

~~**3202.1.2 Vaults and other enclosed spaces.** The construction and utilization of vaults and other enclosed spaces below grade shall be subject to the terms and conditions of the applicable governing authority.~~

~~**3202.1.3 Areaways.** Areaways shall be protected by grates, *guards* or other *approved means*.~~

~~**3202.2 Encroachments above grade and below 8 feet in height.** Encroachments into the public right of way above grade and below 8 feet (2438 mm) in height shall be prohibited except as provided for in Sections 3202.2.1 through 3202.2.3. Doors and windows shall not open or project into the public right of way.~~

~~**3202.2.1 Steps.** Steps shall not project more than 12 inches (305 mm) and shall be guarded by approved devices not less than 3 feet (914 mm) high, or shall be located between columns or pilasters.~~

~~**3202.2.2 Architectural features.** Columns or pilasters, including bases and moldings shall not project more than 12 inches (305 mm). Belt courses, lintels, sills, architraves, pediments and similar architectural features shall not project more than 4 inches (102 mm).~~

~~**3202.2.3 Awnings.** The vertical clearance from the public right of way to the lowest part of any awning, including valances, shall be 7 feet (2134 mm) minimum.~~

~~**3202.3 Encroachments 8 feet or more above grade.** Encroachments 8 feet (2438 mm) or more above grade shall comply with Sections 3202.3.1 through 3202.3.4.~~

~~**3202.3.1 Awnings, canopies, marquees and signs.** Awnings, canopies, marquees and signs shall be constructed so as to support applicable loads as specified in Chapter 16. Awnings, canopies, marquees and signs with less than 15 feet (4572 mm) clearance above the sidewalk shall not extend into or occupy more than two thirds the width of the sidewalk measured from the building. Stanchions or columns that support awnings, canopies, marquees and signs shall be located not less than 2 feet (610 mm) in from the curb line.~~

~~**3202.3.2 Windows, balconies, architectural features and mechanical equipment.** Where the vertical clearance above grade to projecting windows, balconies, architectural features or mechanical equipment is more than 8 feet (2438 mm), 1 inch (25 mm) of encroachment is permitted for each additional 1 inch (25 mm) of clearance above 8 feet (2438 mm), but the maximum encroachment shall be 4 feet (1219 mm).~~

~~**3202.3.3 Encroachments 15 feet or more above grade.** Encroachments 15 feet (4572 mm) or more above grade shall not be limited.~~

~~**3202.3.4 Pedestrian walkways.** The installation of a pedestrian walkway over a public right-of-way shall be subject to the approval of the applicable governing authority. The vertical clearance from the public right-of-way to the lowest part of a *pedestrian walkway* shall be 15 feet (4572 mm) minimum.~~

~~**3202.4 Temporary encroachments.** Where allowed by the applicable governing authority, vestibules and storm enclosures shall not be erected for a period of time exceeding seven months in any one year and shall not encroach more than 3 feet (914 mm) nor more than one fourth of the width of the sidewalk beyond the street *lot line*. Temporary entrance *awnings* shall be erected with a minimum clearance of 7 feet (2134 mm) to the lowest portion of the hood or *awning* where supported on removable steel or other *approved noncombustible support*.)~~

Section 30. The following sections of Chapter 33 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 33

### SAFEGUARDS DURING CONSTRUCTION

\*\*\*

## SECTION 3303

### DEMOLITION

\*\*\*

**3303.2 Pedestrian protection.** The work of demolishing any building shall not be commenced until pedestrian protection is in place as required by this chapter and the Street Use Ordinance, Seattle Municipal Code Title 15.

**3303.3 Means of egress.** A party wall balcony or *horizontal exit* shall not be destroyed unless and until a substitute *means of egress* has been provided and *approved*.

~~((3303.4 Vacant lot. Where a structure has been demolished or removed, the vacant lot shall be filled and maintained to the existing grade or in accordance with the ordinances of the jurisdiction having authority.))~~

**3303.4 Surface condition and fill.** The site shall be left level and free of debris upon completion of demolition, and all holes shall be filled or protected with secure fences. Holes are permitted to be filled with concrete, rocks or other nondecaying material no larger than 12 inches (305 mm) in diameter. Wood and other organic material shall not be buried on the site.

Leaving the site level means:

1. The grade conforms to that existing on all sides;

2. Surface water will drain off;

3. Surface is smooth; and

4. Broken sections of the foundation or other material are not exposed.

The site shall be seeded upon completion of the demolition if it is to be left vacant for more than  
6 months.

\*\*\*

**3303.6 Utility connections.** Service utility connections shall be discontinued and capped in  
accordance with ~~((the approved rules and the requirements of the applicable governing  
authority.))~~ requirements of the governing utility or agency including, but not limited to, Seattle  
Public Utilities, Seattle Department of Transportation, Seattle Fire Department, Seattle City  
Light, Puget Sound Energy and Qwest Communications.

**3303.7 Removal of hazardous and combustible materials.** All asbestos and other hazardous  
material shall be removed prior to demolition, in accordance with regulations of the  
Environmental Protection Agency, the Puget Sound Clean Air Agency and other pertinent  
agencies. Combustible waste shall be removed in accordance with the Fire Code. During  
demolition, streets and sidewalks shall be left clean at the end of each day's operation.

**3303.8 Welding and cutting.** Welding and cutting shall be performed in accordance with the  
*Seattle Fire Code.*

**3303.9 Erosion and sediment control.** Provision shall be made to stabilize ground conditions to  
eliminate dust and erosion. Demolition sites shall comply with the *Seattle Stormwater Code*,  
Seattle Municipal Code (SMC) Title 22 Subtitle VIII and the *Seattle Grading Code*, SMC  
Chapter 22.170.

**3303.10 Drainage.** If the demolition will result in a change of drainage patterns, the flow of all  
watercourses, including streams, ditches, drains, combined sewers and runoff, intercepted during

the progress of the work, shall be returned to the condition present before the demolition or as specified on the permit, and in accordance with the *Seattle Stormwater Code* and *Seattle Grading Code*, SMC Title 22 Subtitle VIII and SMC Chapter 22.170, respectively.

**3303.11 Foundations and footings.** All concrete or masonry floors, foundations, footings, basement walls and retaining walls not to be reused shall be removed to 18 inches (457 mm) below final grade. All concrete floors left in place shall be broken so as to allow water to drain through unless the floors are to be used.

**3303.12 Engineer's report.** The building official is permitted to require a structural engineer's analysis of proposed demolition or any portions of a structure remaining after demolition.

**3303.13 Underground tanks.** When demolition occurs, all underground tanks on the site shall either be removed or filled, as required by the *International Fire Code*.

## SECTION 3304

### SITE WORK

**3304.1 Excavation and fill.** Excavation and fill for buildings and structures shall be constructed or protected so as not to endanger life or property. Stumps and roots shall be removed from the soil to a depth of at least 12 inches (305 mm) below the surface of the ground in the area to be occupied by the building. Wood forms which have been used in placing concrete, if within the ground or between foundation sills and the ground, shall be removed before a building is occupied or used for any purpose. Before completion, loose or casual wood shall be removed from direct contact with the ground under the building.

**3304.1.1 Slope limits.** Slopes for permanent fill shall not be steeper than one unit vertical in two units horizontal (50-percent slope). Cut slopes for permanent excavations shall not be steeper than one unit vertical in two units horizontal (50-percent slope). Deviation from the foregoing limitations ((~~for cut slopes~~)) shall be permitted only upon the presentation of a soil investigation report acceptable to the *building official*.

**3304.1.2 Surcharge.** No fill or other surcharge loads shall be placed adjacent to any building or structure unless such building or structure is capable of withstanding the additional loads caused by the fill or surcharge. Existing footings or foundations which can be affected by any excavation shall be underpinned adequately or otherwise protected against settlement and shall be protected against later movement.

((~~3304.1.3 Footings on adjacent slopes.~~ For footings on adjacent slopes, see Chapter 18.))

**3304.1.4 Fill supporting foundations.** Fill to be used to support the foundations of any building or structure shall comply with Section 1804.5. Special inspections of compacted fill shall be in accordance with Section 1704.7.

## SECTION 3305

### SANITARY

**3305.1 Facilities required.** Sanitary facilities shall be provided during construction, remodeling or demolition activities in accordance with the ((~~International~~)) *Uniform Plumbing Code*.

## SECTION 3306

### PROTECTION OF PEDESTRIANS

**3306.1 Protection required.** The protection of the public and of the sidewalks, streets and other public property during construction or demolition shall be provided as required by the Street Use Ordinance, Seattle Municipal Code Title 15. ~~((Pedestrians shall be protected during construction, remodeling and demolition activities as required by this chapter and Table 3306.1. Signs shall be provided to direct pedestrian traffic.])~~

**TABLE 3306.1**

**PROTECTION OF PEDESTRIANS**

<b>HEIGHT OF CONSTRUCTION</b>	<b>DISTANCE FROM CONSTRUCTION TO LOT LINE</b>	<b>TYPE OF PROTECTION REQUIRED</b>
8 feet or less	Less than 5 feet	Construction railings
	5 feet or more	None
More than 8 feet	Less than 5 feet	Barrier and covered walkway
	5 feet or more, but not more than one-fourth the height of construction	Barrier and covered walkway
	5 feet or more, but between one-fourth and one-half the height of construction	Barrier
	5 feet or more, but exceeding one-half the height of construction	None

For SI: 1 foot = 304.8 mm.



**3306.2 Walkways.** ~~A walkway shall be provided for pedestrian travel in front of every construction and demolition site unless the applicable governing authority authorizes the sidewalk to be fenced or closed. Walkways shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall they be less than 4 feet (1219 mm) in width. Walkways shall be provided with a durable walking surface. Walkways shall be *accessible* in accordance with Chapter 11 and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot (psf) (7.2 kN/m<sup>2</sup>).~~

**3306.3 Directional barricades.** ~~Pedestrian traffic shall be protected by a directional barricade where the walkway extends into the street. The directional barricade shall be of sufficient size and construction to direct vehicular traffic away from the pedestrian path.~~

**3306.4 Construction railings.** ~~Construction railings shall be at least 42 inches (1067 mm) in height and shall be sufficient to direct pedestrians around construction areas.~~

**3306.5 Barriers.** ~~Barriers shall be a minimum of 8 feet (2438 mm) in height and shall be placed on the side of the walkway nearest the construction. Barriers shall extend the entire length of the construction site. Openings in such barriers shall be protected by doors which are normally kept closed.~~

**3306.6 Barrier design.** ~~Barriers shall be designed to resist loads required in Chapter 16 unless constructed as follows:~~

- ~~1. Barriers shall be provided with 2 inch by 4 inch (51 mm by 102 mm) top and bottom plates.~~
- ~~2. The barrier material shall be a minimum of 3/4 inch (19.1 mm) boards or 1/4 inch (6.4 mm) wood structural use panels.~~

3. ~~Wood structural use panels shall be bonded with an adhesive identical to that for exterior wood structural use panels.~~

4. ~~Wood structural use panels 1/4 inch (6.4 mm) or 5/16 inch (23.8 mm) in thickness shall have studs spaced not more than 2 feet (610 mm) on center (o.c.).~~

5. ~~Wood structural use panels 3/8 inch (9.5 mm) or 1/2 inch (12.7 mm) in thickness shall have studs spaced not more than 4 feet (1219 mm) on center provided a 2-inch by 4-inch (51 mm by 102 mm) stiffener is placed horizontally at midheight where the stud spacing exceeds 2 feet (610 mm) o.c.~~

6. ~~Wood structural use panels 5/8 inch (15.9 mm) or thicker shall not span over 8 feet (2438 mm).~~

**3306.7 Covered walkways.** ~~Covered walkways shall have a minimum clear height of 8 feet (2438 mm) as measured from the floor surface to the canopy overhead. Adequate lighting shall be provided at all times. Covered walkways shall be designed to support all imposed loads. In no case shall the design live load be less than 150 psf (7.2 kN/m<sup>2</sup>) for the entire structure.~~

**Exception:** ~~Roofs and supporting structures of covered walkways for new, light frame construction not exceeding two stories above grade plane are permitted to be designed for a live load of 75 psf (3.6 kN/m<sup>2</sup>) or the loads imposed on them, whichever is greater. In lieu of such designs, the roof and supporting structure of a covered walkway are permitted to be constructed as follows:~~

1. ~~Footings shall be continuous 2-inch by 6-inch (51 mm by 152 mm) members.~~

1 ~~2. Posts not less than 4 inches by 6 inches (102 mm by 152 mm) shall be provided on both sides~~  
2 ~~of the roof and spaced not more than 12 feet (3658 mm) on center.~~

3 ~~3. Stringers not less than 4 inches by 12 inches (102 mm by 305 mm) shall be placed on edge~~  
4 ~~upon the posts.~~

5 ~~4. Joists resting on the stringers shall be at least 2 inches by 8 inches (51 mm by 203 mm) and~~  
6 ~~shall be spaced not more than 2 feet (610 mm) on center.~~

7 ~~5. The deck shall be planks at least 2 inches (51 mm) thick or wood structural panels with an~~  
8 ~~exterior exposure durability classification at least 23/32 inch (18.3 mm) thick nailed to the joists.~~

9 ~~6. Each post shall be knee braced to joists and stringers by 2 inch by 4 inch (51 mm by 102 mm)~~  
10 ~~minimum members 4 feet (1219 mm) long.~~

11 ~~7. A 2 inch by 4 inch (51 mm by 102 mm) minimum curb shall be set on edge along the outside~~  
12 ~~edge of the deck.~~

13 ~~**3306.8 Repair, maintenance and removal.** Pedestrian protection required by this chapter shall~~  
14 ~~be maintained in place and kept in good order for the entire length of time pedestrians may be~~  
15 ~~endangered. The owner or the owner's agent, upon the completion of the construction activity,~~  
16 ~~shall immediately remove walkways, debris and other obstructions and leave such public~~  
17 ~~property in as good a condition as it was before such work was commenced.~~

18 ~~**3306.9 Adjacent to excavations.** Every excavation on a site located 5 feet (1524 mm) or less~~  
19 ~~from the street *lot line* shall be enclosed with a barrier not less than 6 feet (1829 mm) high.~~

20 ~~Where located more than 5 feet (1524 mm) from the street *lot line*, a barrier shall be erected~~

1 ~~when required by the building official. Barriers shall be of adequate strength to resist wind~~  
2 ~~pressure as specified in Chapter 16.))~~

## 3 SECTION 3307

### 4 PROTECTION OF ADJOINING PROPERTY

5 **3307.1 Protection required.** Adjoining public and private property shall be protected from  
6 damage during construction, remodeling and demolition work. Protection ~~((must))~~ shall be  
7 provided for footings, foundations, party walls, chimneys, skylights and roofs. Provisions shall  
8 be made to control water runoff and erosion during construction or demolition activities. ~~((The~~  
9 ~~person making or causing an excavation to be made shall provide written notice to the owners of~~  
10 ~~adjoining buildings advising them that the excavation is to be made and that the adjoining~~  
11 ~~buildings should be protected. Said notification shall be delivered not less than 10 days prior to~~  
12 ~~the scheduled starting date of the excavation.))~~ When the existing grade of a site is altered by  
13 filling, excavating, dredging or moving of earth materials, the owner shall protect all adjoining  
14 property during construction from encroachment or collapse by sloping the sides of the  
15 temporary grading at a slope that is safe and not more than one horizontal to one vertical. In  
16 addition, adjoining property shall be protected from encroachment or collapse by sloping the  
17 sides of the permanent grading at a slope not greater than two horizontal to one vertical. The  
18 building official is authorized to approve temporary or permanent slopes that are steeper based on  
19 a design by an experienced geotechnical engineer.  
20 In areas of known unsuitable soils, the building official is authorized to require slopes that are  
21 less steep to assure protection of adjoining property.  
22  
23  
24  
25  
26  
27  
28

## SECTION 3308

### TEMPORARY USE OF STREETS, ALLEYS AND PUBLIC PROPERTY

**3308.1 General.** Temporary use of streets, alleys and public property shall comply with the Street Use Ordinance, Seattle Municipal Code Title 15. ~~((Storage and handling of materials.~~

~~The temporary use of streets or public property for the storage or handling of materials or of equipment required for construction or demolition, and the protection provided to the public shall comply with the provisions of the applicable governing authority and this chapter.~~

~~**3308.1.1 Obstructions.** Construction materials and equipment shall not be placed or stored so as to obstruct access to fire hydrants, standpipes, fire or police alarm boxes, catch basins or manholes, nor shall such material or equipment be located within 20 feet (6096 mm) of a street intersection, or placed so as to obstruct normal observations of traffic signals or to hinder the use of public transit loading platforms.~~

~~**3308.2 Utility fixtures.** Building materials, fences, sheds or any obstruction of any kind shall not be placed so as to obstruct free approach to any fire hydrant, fire department connection, utility pole, manhole, fire alarm box or catch basin, or so as to interfere with the passage of water in the gutter. Protection against damage shall be provided to such utility fixtures during the progress of the work, but sight of them shall not be obstructed.))~~

\*\*\*

## SECTION 3310

### MEANS OF EGRESS

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**[F] 3310.3 Stairway floor number signs.** Temporary stairway floor number signs shall be provided in accordance with the requirements of Section 1022.8.1.

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Section 31. The following findings of fact are adopted in accordance with Washington Administrative Code 51-04-030 in support of amendments to Chapter 34:

- Seattle is a densely-occupied city with a very large number of existing buildings; much of the building construction activity in Seattle consists of altering existing buildings for reuse.
- Flexibility in applying code provisions is necessary to accommodate the variety of buildings in Seattle that were constructed under codes dating as far back as the 1800s. The flexibility in Seattle's existing building provisions recognizes that standards that are reasonable for new construction are often infeasible for older buildings.
- Seattle's existing building provisions result in safety improvements to buildings when strict adherence to all the code requirements would often result in older buildings not being reused and not being upgraded.
- Seattle is a densely-developed city with high seismic risk:
  - Seattle has experienced three significant earthquakes in the past 60 years.
  - Seattle has a seismic fault located directly below areas that are liquefaction-prone, have large numbers of unreinforced masonry buildings, and are densely-populated and heavily-developed.

- Seattle has experienced a greater rate of damage to buildings resulting from earthquakes than most other jurisdictions in Washington.
- The International Codes do not require seismic upgrades of existing buildings—Seattle codes' substantial alteration provisions require upgrades of unaltered portions of buildings. The upgrades are not required to conform to the standards for new construction because such standards are often infeasible for older buildings, and Seattle codes' substantial alteration provisions are the most suitable provisions for Seattle's unique conditions.
- The Building Code provisions have been in place in general form for many years, providing consistency for owners of buildings and helping them predict what rules will apply as they plan the future use of their buildings.
- Seattle has expert staff with training, education, and experience to use judgment in applying the discretionary provisions.

Section 32. The following sections of Chapter 34 of the International Building Code, 2009 Edition, are amended as follows:

**CHAPTER 34**  
**EXISTING STRUCTURES**  
**SECTION 3401**  
**GENERAL**

**3401.1 Scope.** The provisions of this chapter shall control the *alteration*, repair, *addition*,  
maintenance and change of occupancy of existing structures.

**Exception:** Existing *bleachers*, grandstands and folding and telescopic seating shall comply  
with ICC 300((-02)).

**3401.2 Maintenance.** Buildings and structures, and parts thereof, shall be maintained in a safe  
and sanitary condition. Devices or safeguards which are required by this code shall be maintained  
in conformance with the code edition under which installed. The owner or the owner's  
designated agent shall be responsible for the maintenance of buildings and structures. To  
determine compliance with this subsection, the *building official* shall have the authority to  
require a building or structure to be reinspected. The requirements of this chapter shall not  
provide the basis for removal or abrogation of fire protection and safety systems and devices in  
existing structures.

**Exceptions:**

1. The building official is authorized to modify the requirements of this subsection where all  
or a portion of a building is unoccupied, closed off and reasonably secure from unlawful  
entry.
2. Occupants of Group R-2 apartments, and Group R-3 dwellings are responsible for the  
maintenance of smoke alarms and carbon monoxide alarms required by Chapter 9, this  
chapter and the *International Fire Code*.

**3401.3 Compliance.** Alterations, repairs, additions and changes of occupancy to existing  
structures shall comply with the provisions for alterations, repairs, additions and changes of



occupancy in the *International Fire Code, International Fuel Gas Code, International Mechanical Code, ((~~International~~)) Uniform Plumbing Code, International Property Maintenance Code, International Private Sewage Disposal Code, International Residential Code and ((~~NFPA 70~~)) the Seattle Electrical Code.*

**3401.4 Building materials.** Building materials shall comply with the requirements of this section.

**3401.4.1 Existing materials.** Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the building code official to be dangerous to life, health or safety. Where such conditions are determined to be dangerous to life, health or safety, they shall be mitigated or made safe.

**3401.4.2 New and replacement materials.** Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs of minor structural damage as defined in Section 3405.2.2 and nonstructural alterations, provided no hazard to life, health or property is created, and they do not adversely affect any structural member or the fire-resistance rating of any part of the building or structure. When approved by the building official, minor structural alterations and minor repairs necessary to maintain the structural stability of the building is permitted to be made with the same material of which the building or structure is constructed.

Hazardous materials shall not be used where the code for new construction would not *permit* their use in buildings of similar occupancy, purpose and location.

1 **3401.((4))5 Alternative compliance.** ~~((Work))~~ Except for historic buildings, substantial  
2 alterations and repair to damaged buildings, work performed in accordance with the *International*  
3 *Existing Building Code* shall be deemed to comply with the provisions of this chapter.

4 **3401.6 Existing occupancies.** Buildings in existence at the time of the passage of this building  
5 code that were legally constructed and occupied in accordance with the provisions of a prior code  
6 are permitted to have their existing occupancy continued, provided such occupancy is not  
7 hazardous.

9 **3401.6.1 Establishing for the record existing occupancies.** In order for an existing  
10 occupancy to be established for the record, the building shall comply with the fire and life  
11 safety requirements of this building code or the effective code at the time the building was  
12 constructed. If the existing occupancy or use is other than that for which the building was  
13 constructed, the building shall comply with this building code or the effective code at the  
14 time the existing occupancy was legally established.

15 **3401.7 Occupant load increases in Group A occupancies.** When the occupant load in an  
16 existing Group A is increased, an automatic sprinkler system shall be installed in the fire area  
17 containing the Group A occupancy if a sprinkler system would be required by Section 903.2.1 for  
18 new construction.

19 **Exception:** A sprinkler system is not required if all the following conditions are met:

- 20 1. The increase is either 50 occupants or less, or no more than 10 percent of the occupant  
21 load of the existing Group A occupancy, whichever is greater; and

2. The existing means of egress system has adequate capacity to accommodate the additional occupant load; and

3. The total occupant load in the Group A occupancy does not exceed one occupant per 5 square feet; and

4. The increase is not part of a substantial alteration.

**3401.8 Unsafe building appendages.** Parapet walls, cornices, spires, towers, tanks, statuary and other appendages or structural members that are supported by, attached to, or a part of a building and that are in a deteriorated condition or are otherwise unable to sustain the design loads that are specified in this building code, are hereby designated as unsafe building appendages. All such unsafe building appendages are public nuisances and shall be abated in accordance with Section 102.

**3401.9 Central waterfront piers.** All piers located between West Harrison Street and South Massachusetts Street, both existing and new, and all portions thereof shall be maintained in a safe condition capable of supporting the design loads specified in this code. See also Section 424.

**3401.10 Impracticality.** In cases where total compliance with all the requirements of this chapter, other than Section 3411, is impractical, the applicant is permitted to arrange a pre-design conference with the design team and the building official. The applicant shall identify design solutions and modifications that conform to Section 104.4. The building official is authorized to waive specific requirements in this code, other than Section 3411, which the building official determines to be impractical.

## SECTION 3402

### DEFINITIONS

**3402.1 Definitions.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in the code, have the meanings shown herein.

**DAMAGE RATIO.** The ratio between the cost of work and the estimated replacement cost of the building, expressed as a percentage. The work includes repair of damage to structural and fire/life safety systems.

**DANGEROUS.** Any building or structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, partially collapsed, moved off its foundation or lacks the support of ground necessary to support it.
2. There exists a significant risk of collapse, detachment or dislodgment of any portion, member, appurtenance or ornamentation of the building or structure under service loads.

**DESIGN BASIS EARTHQUAKE (DBE).** The lesser of an earthquake with a 10 percent chance of exceedance in 50 years or two-thirds MCE.

**EXISTING STRUCTURE.** A structure erected prior to the date of adoption of the appropriate code, or one for which a ~~((legal building permit))~~ valid Certificate of Occupancy has been issued or a structure that has passed a final inspection.

**LIFE SAFETY PERFORMANCE LEVEL.** A post-earthquake damage state that includes damage to structural elements, but the building retains a margin against partial or total collapse.

Injuries may occur, but the overall risk of life-threatening injury as a result of structural damage is expected to be low.

**MAXIMUM CONSIDERED EARTHQUAKE (MCE).** An earthquake with a 2 percent probability of exceedance in 50 years.

**PRIMARY FUNCTION.** A *primary function* is a major activity for which the facility is intended. Areas that contain a *primary function* include, but are not limited to, the customer service lobby of a bank, the dining area of a cafeteria, the meeting rooms in a conference center, as well as offices and other work areas in which the activities of the public accommodation or other private entity using the facility are carried out. Mechanical rooms, boiler rooms, supply storage rooms, employee lounges or locker rooms, janitorial closets, entrances, corridors and restrooms are not areas containing a *primary function*.

~~((SUBSTANTIAL STRUCTURAL DAMAGE. A condition where:~~

- ~~1. In any story, the vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of the structure in any horizontal direction has been reduced by more than 20 percent from its pre-damage condition; or~~
- ~~2. The capacity of any vertical gravity load-carrying component, or any group of such components, that supports more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its pre-damage condition and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by this code for new buildings of similar structure, purpose and location.))~~

**TECHNICALLY INFEASIBLE.** An *alteration* of a building or a facility that has little likelihood of being accomplished because the existing structural conditions require the removal or *alteration* of a load-bearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces or features which are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility.

## SECTION 3403

### ADDITIONS

**3403.1 General.** Additions to any building or structure shall comply with the requirements of this code for new construction. Alterations to the existing building or structure shall be made to ensure that the existing building or structure together with the *addition* are no less conforming with the provisions of this code than the existing building or structure was prior to the *addition*. An existing building together with its additions shall comply with the height and area provisions of Chapter 5.

**Note:** A significant addition to an existing building may be considered a substantial alteration.

**3403.1.1 Addition of dwelling units.** Automatic sprinkler systems are required when new dwelling units are added to buildings according to Items 1 through 5 below. This provision is permitted to be used to add one unit over the life of the building.

1. One unit is permitted to be added to a residential or commercial building without an automatic sprinkler system unless sprinklers are otherwise required by this section.

If more than one unit is added, the new units shall be equipped with a sprinkler system.

2. In buildings that do not comply with the provisions of this code for number of stories, allowable area, height or type of construction before the unit is added, an automatic sprinkler system shall be provided in the new unit. The addition of the new unit shall not be allowed if it increases the nonconformity.

3. In buildings undergoing substantial alteration, an automatic sprinkler system shall be installed where required by this code for new construction.

4. One unit is permitted to be added to an existing duplex without an automatic sprinkler system where both of the following conditions are met:

4.1 The project is considered a substantial alteration only because of the change in occupancy; and

4.2 The building complies with the requirements for building height and number of stories for a Group R-2 occupancy.

5. Where one unit is added to an existing duplex, sprinklers are required in the new unit and not in the existing units where all of the following conditions are met:

5.1 The existing duplex does not comply with the requirements for building height and story count for a Group R-2 occupancy;

5.2 The project is considered a substantial alteration only because of the change in occupancy;

5.3 The new unit is constructed as an addition to the duplex;

5.5 The addition by itself complies with the requirements for a Group R-2 occupancy.

**3403.1.3 Smoke alarms in existing portions of a building.** Where an *addition* is made to a building or structure of a Group R or I-1 occupancy, the *existing building* shall be provided with smoke alarms in accordance with Section 4603.7 of the *International Fire Code*.

## SECTION 3404

**3404.1 General.** Except as provided by Section 3401.4 or this section, alterations to any building or structure shall comply with the requirements of the code for new construction. Alterations shall be such that the existing building or structure is no less complying with the provisions of this code than the existing building or structure was prior to the *alteration*.

1. Subject to the approval of the building official, ((An)) existing *stairways* shall not be required to comply with the requirements of Sections 1009.2 and 1009.4.2 where the existing space and construction does not allow a reduction in pitch or slope.



2. Handrails otherwise required to comply with Section 1009.12 shall not be required to comply with the requirements of Section 1012.6 regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.

3. Where changes to offices, outpatient clinics or medical offices occur on a multi-tenant floor that contains non-conforming corridors, new tenant walls associated with the tenant change need not meet the standards for one-hour corridor construction, unless the project is considered a substantial alteration as defined in this chapter.

4. Automatic sprinkler systems are required when new dwelling units are added to buildings according to Items 4.1 through 4.6 below. This exception is permitted to be used to add one unit over the life of the building.

4.1 One unit is permitted to be added to a residential or commercial building without an automatic sprinkler system unless sprinklers are otherwise required by this section. If more than one unit is added, the new units shall be equipped with a sprinkler system.

4.2 In buildings that do not comply with the provisions of this code for number of stories, allowable area, height or type of construction before the unit is added, an automatic sprinkler system shall be provided in the new unit. The addition of the new unit shall not be allowed if it increases the nonconformity.

4.3 In buildings undergoing substantial alteration, an automatic sprinkler system shall be installed where required by this code for new construction.

4.4 One unit is permitted to be added to an existing duplex without an automatic sprinkler system where both of the following conditions are met:

1           4.4.1 The project is considered a substantial alteration only because of the change in  
2                           occupancy; and

3           4.4.2 The building complies with the requirements for building height and number of  
4                           stories for a Group R-2 occupancy.

5           4.5 Where one unit is added to an existing duplex, sprinklers are required in the new unit  
6                           and not in the existing units where all of the following conditions are met:

7                           4.5.1 The existing duplex does not comply with the requirements for building height  
8   and story count for a Group R-2 occupancy;

9                           4.5.2 The project is considered a substantial alteration only because of the change in  
10   occupancy;

11                           4.5.3 The new unit is constructed as an addition to the duplex;

12                           4.5.4 The new unit is separated from the existing duplex by a fire wall; and

13                           4.5.5 The addition by itself complies with the requirements for a Group R-2  
14   occupancy.

15           4.6 A sprinkler system is not required when a Group U occupancy that is accessory to a  
16                           Group R-3 occupancy is converted to a dwelling unit.

17           5. Ceilings in basements are permitted to project to within 6 feet 8 inches (2032 mm) of the  
18                           finished floor, and beams, girders, ducts or other obstructions are permitted to project to  
19                           within 6 feet 4 inches (1931 mm) of the finished floor.

20           6. Ceiling height in buildings in existence prior to October 17, 1979, shall be permitted to  
21                           comply with rules promulgated by the building official.

\*\*\*

~~((3404.6 Means of egress capacity factors. Alterations to any existing building or structure shall not be affected by the egress width factors in Section 1005.1 for new construction in determining the minimum egress widths or the minimum number of exits in an existing building or structure. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for any alteration if, in the opinion of the building code official, they do not constitute a distinct hazard to life.))~~

**3404.6 Smoke alarms.** Individual sleeping units and individual dwelling units in Group R and I-1 occupancies shall be provided with smoke alarms in accordance with Section 4603.7 of the *International Fire Code*.

**3404.7 Unreinforced masonry chimneys.** Whenever an unreinforced masonry chimney is altered or when the building in which such a chimney is located undergoes substantial alteration, the chimney shall conform to rules promulgated by the building official.

**3404.8 Substantial alterations or repairs.** Any building or structure to which substantial alterations or repairs are made shall conform with the requirements of this section and Sections 403 (high rise buildings) when applicable, special requirements for the Fire District found in Chapter 4 when applicable, Section 716 (protection of ducts and air-transfer openings), Chapter 8 (interior finishes), Section 903 (automatic sprinkler systems), and Chapter 10 (means of egress). Fire alarms shall be provided as required by the *International Fire Code*.

See Section 3404.7 for specific requirements for unreinforced masonry chimneys.

**3404.8.1 Definition.** For the purpose of this section, substantial alterations or repairs mean any one of the following, as determined by the building official:

1. Repair of buildings with damage ratios of 60 percent or more.
2. Remodeling or additions that substantially extend the useful physical and/or economic life of the building or a significant portion of the building, other than typical tenant remodeling.
3. A change of a significant portion of a building to an occupancy that is more hazardous than the existing occupancy, based on the combined life and fire risk as determined by the building official. The building official is permitted to use Table 3404.8 as a guideline. A change of tenant does not necessarily constitute a change of occupancy.
4. Reoccupancy of a building that has been substantially vacant for more than 24 months in occupancies other than Group R-3.
5. A significant increase in the occupant load of an unreinforced masonry building.

**3404.8.2 Seismic regulations.** The provisions of Section 1613 apply to all buildings or structures to which substantial alterations or repairs are made. In addition, the building official is authorized to require testing of existing materials when there is insufficient evidence of structural strength or integrity.

**Exceptions:**

1. If an alteration is substantial only because it is a change to a more hazardous occupancy, compliance with this subsection is required only if the life hazard risk increases, as determined by the building official.

2. The building official is authorized to accept a proposal in lieu of compliance with Chapter 16. The proposal shall be based on a comprehensive report prepared by a licensed structural engineer according to rules promulgated by the building official. The report shall include an investigation and structural analysis of the building based on an approved standard. The report shall specify the building's seismic deficiencies, and propose measures that will provide an acceptable degree of seismic safety considering the nature, size and scope of the project. This requirement shall also apply to Section 102 as conditions require.

3. In lieu of compliance with the seismic provisions of Chapter 16 for Group R-3 Occupancies, when approved by the building official the applicant is permitted to evaluate and strengthen portions of the building lateral support structure, such as foundations and cripple walls.

**Table 3404.8**

**RATING OF OCCUPANCIES BY DEGREE OF HAZARD**

<b><u>Occupancy</u></b>	<b><u>Description</u></b>	<b><u>Life</u></b>	<b><u>Fire</u></b>	<b><u>Combined Rating</u></b>
<u>A1</u>	<u>Assembly uses, usually with fixed seating, intended for the production and viewing of the performing arts or motion pictures</u>	<u>4</u>	<u>3</u>	<u>12</u>
<u>A2</u>	<u>Assembly uses intended for food and/or drink consumption</u>	<u>4</u>	<u>3</u>	<u>12</u>

<u>Occupancy</u>	<u>Description</u>	<u>Life</u>	<u>Fire</u>	<u>Combined Rating</u>
<u>A3</u>	<u>Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A</u>	<u>4</u>	<u>3</u>	<u>12</u>
<u>A4</u>	<u>Assembly uses intended for viewing of indoor sporting events and activities with spectator seating</u>	<u>3</u>	<u>1</u>	<u>3</u>
<u>A5</u>	<u>Assembly uses intended for participation in or viewing outdoor activities</u>	<u>3</u>	<u>1</u>	<u>3</u>
<u>B</u>	<u>Office, professional or service-type transactions, including storage of records and accounts.</u>	<u>2</u>	<u>1</u>	<u>2</u>
<u>B</u>	<u>Eating &amp; drinking establishments with an occupant load of less than 50</u>	<u>2</u>	<u>1</u>	<u>2</u>
<u>B</u>	<u>Buildings or portions of buildings having rooms used for educational purposes beyond 12th grade</u>	<u>2</u>	<u>1</u>	<u>2</u>

<u>Occupancy</u>	<u>Description</u>	<u>Life</u>	<u>Fire</u>	<u>Combined Rating</u>
<u>E</u>	<u>Any building used for educational purposes by six or more persons at any one time for educational purposes through the 12th grade</u>	<u>3</u>	<u>2</u>	<u>6</u>
<u>E</u>	<u>Day care centers for more than five children older than 2<sup>1</sup>/<sub>2</sub> years of age</u>	<u>3</u>	<u>2</u>	<u>6</u>
<u>I4</u>	<u>Facilities that provide accommodations for less than 24 hours for more than five unrelated adults and provides supervision and personal care services; facilities that provide supervision and personal care on less than a 24-hour basis for more than five children 2<sup>1</sup>/<sub>2</sub> years of age or less</u>	<u>4</u>	<u>3</u>	<u>12</u>
<u>F1</u>	<u>Moderate hazard factory and industrial</u>	<u>2</u>	<u>2</u>	<u>4</u>
<u>F2</u>	<u>Low-hazard factory and industrial</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>H1</u>	<u>Occupancies with a detonation hazard</u>	<u>5</u>	<u>4</u>	<u>20</u>
<u>H2</u>	<u>Occupancies which present a deflagration hazard or a hazard from accelerated burning</u>	<u>5</u>	<u>4</u>	<u>20</u>

<u>Occupancy</u>	<u>Description</u>	<u>Life</u>	<u>Fire</u>	<u>Combined Rating</u>
<u>H3</u>	<u>Occupancies containing materials that readily support combustion or that pose a physical hazard</u>	<u>5</u>	<u>4</u>	<u>20</u>
<u>H4</u>	<u>Occupancies containing materials that are health hazards</u>	<u>5</u>	<u>4</u>	<u>20</u>
<u>H5</u>	<u>Semiconductor fabrication facilities</u>	<u>5</u>	<u>4</u>	<u>20</u>
<u>I1</u>	<u>Buildings, structures or parts thereof housing more than 16 persons, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services</u>	<u>3</u>	<u>3</u>	<u>9</u>



<u>Occupancy</u>	<u>Description</u>	<u>Life</u>	<u>Fire</u>	<u>Combined Rating</u>
<u>I2</u>	<u>Buildings and structures used for medical, surgical, psychiatric, nursing or custodial care on a 24-hour basis of more than five persons who are not capable of self-preservation; child care facilities that provide care on a 24-hour basis to more than five children 2<sup>1</sup>/<sub>2</sub> years of age or less</u>	<u>4</u>	<u>3</u>	<u>12</u>
<u>I3</u>	<u>Jails, prisons, reformatories</u>	<u>4</u>	<u>3</u>	<u>12</u>
<u>M</u>	<u>Buildings used for display and sale of merchandise</u>	<u>3</u>	<u>2</u>	<u>6</u>
<u>R1</u>	<u>Residential occupancies where the occupants are primarily transient in nature</u>	<u>3</u>	<u>3</u>	<u>9</u>
<u>R2</u>	<u>Residential occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature</u>	<u>3</u>	<u>3</u>	<u>9</u>
<u>R3</u>	<u>One- and two-family dwellings; family child day care homes; adult family homes</u>	<u>2</u>	<u>1</u>	<u>2</u>

<u>Occupancy</u>	<u>Description</u>	<u>Life</u>	<u>Fire</u>	<u>Combined Rating</u>
<u>S1</u>	<u>Moderate hazard</u>	<u>2</u>	<u>2</u>	<u>4</u>
<u>S2</u>	<u>Low-hazard storage</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>U</u>	<u>Accessory character and miscellaneous structures</u>	<u>1</u>	<u>1</u>	<u>1</u>

## SECTION 3405

### REPAIRS

**3405.1 General.** Buildings and structures, and parts thereof, shall be repaired in compliance with Section 3401.2. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations except as specifically required in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from *permit* in accordance with Section 106.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

**3405.1.1 Dangerous conditions.** Regardless of the extent of structural or nonstructural damage, the building ((code)) official shall have the authority to require the elimination of conditions deemed dangerous. See Section 102 for provisions for unsafe buildings.

~~((3405.2 Substantial structural damage to vertical elements of the lateral force-resisting system. A building that has sustained substantial structural damage to the vertical elements of its~~

lateral force resisting system shall be evaluated and repaired in accordance with the applicable provisions of Sections 3405.2.1 through 3405.2.3.

**3405.2.1 Evaluation.** The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the code official. The evaluation shall establish whether the damaged building, if repaired to its predamage state, would comply with the provisions of this code for wind and earthquake loads. Evaluation for earthquake loads shall be required if the substantial structural damage was caused by or related to earthquake effects or if the building is in Seismic Design Category C, D, E or F. Wind loads for this evaluation shall be those prescribed in Section 1609. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613. Values of  $R$ ,  $W_0$  and  $C_d$  for the existing seismic force resisting system shall be those specified by this code for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of an intermediate or special system.

**3405.2.2 Extent of repair for compliant buildings.** If the evaluation establishes compliance of the predamage building in accordance with Section 3405.2.1, then repairs shall be permitted that restore the building to its predamage state using materials and strengths that existed prior to the damage.

**3405.2.3 Extent of repair for noncompliant buildings.** If the evaluation does not establish compliance of the predamage building in accordance with Section 3405.2.1, then the building shall be rehabilitated to comply with applicable provisions of this code for load combinations, including wind or seismic loads. The wind loads for the repair shall be as

1 ~~required by the building code in effect at the time of original construction, unless the damage~~  
2 ~~was caused by wind, in which case the wind loads shall be as required by the code in effect at~~  
3 ~~the time of original construction or as required by this code, whichever are greater.~~

4 ~~Earthquake loads for this rehabilitation design shall be those required for the design of the~~  
5 ~~predamage building, but not less than 75 percent of those prescribed in Section 1613. New~~  
6 ~~structural members and connections required by this rehabilitation design shall comply with~~  
7 ~~the detailing provisions of this code for new buildings of similar structure, purpose and~~  
8 ~~location.~~

10 ~~**3405.3 Substantial structural damage to gravity load-carrying components.** Gravity load-~~  
11 ~~carrying components that have sustained substantial structural damage shall be rehabilitated to~~  
12 ~~comply with the applicable provisions of this code for dead and live loads. Snow loads shall be~~  
13 ~~considered if the substantial structural damage was caused by or related to snow load effects.~~  
14 ~~Existing gravity load-carrying structural elements shall be permitted to be designed for live loads~~  
15 ~~*approved* prior to the damage. Nondamaged gravity load-carrying components that receive dead,~~  
16 ~~live or snow loads from rehabilitated components shall also be rehabilitated or shown to have the~~  
17 ~~capacity to carry the design loads of the rehabilitation design. New structural members and~~  
18 ~~connections required by this rehabilitation design shall comply with the detailing provisions of~~  
19 ~~this code for new buildings of similar structure, purpose and location.~~

23 ~~**3405.3.1 Lateral force-resisting elements.** Regardless of the level of damage to vertical~~  
24 ~~elements of the lateral force-resisting system, if substantial structural damage to gravity load-~~  
25 ~~carrying components was caused primarily by wind or earthquake effects, then the building~~

shall be evaluated in accordance with Section 3405.2.1 and, if noncompliant, rehabilitated in accordance with Section 3404.2.3.

**3405.4 Less than substantial structural damage.** For damage less than substantial structural damage, repairs shall be allowed that restore the building to its predamage state using materials and strengths that existed prior to the damage. New structural members and connections used for this repair shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.))

**3405.2 Repair levels.** Repairs shall be classified as repair of minor damage, repair of moderate damage, or repair of significant damage, and repair of extensive damage.

**3405.2.1 Determining repair levels.** Required repair levels shall be based on the damage ratio as defined in Section 3402.1. Repair levels shall be determined according to rules promulgated by the Director.

**3405.2.2 Requirements for repair of minor damage.** Repair of buildings with damage ratios less than 10 percent shall comply with this Section 3405.2.2. The building official is permitted to allow replacement in kind for minor repairs according to Section 3401.4. For unreinforced masonry chimneys, see Section 3405.3.

1. Damage to structural elements and fire/life safety systems shall be repaired.
2. New or replaced elements shall comply with current code requirements.
3. New or replaced structural elements shall be tied into new or existing structure in accordance with the structural engineer's recommendations and accepted practice.

1        4. All structural repairs shall be designed by a structural engineer licensed in the State of

2        Washington.

3        5. Regardless of the amount of damage to the building, all parapets constructed of  
4        unreinforced masonry and other unsafe building appendages shall be evaluated.

5        Parapets and other appendages determined to be deficient shall either be:

6        (a) braced in accordance with ASCE 41 for life safety performance; or

7        (b) abated in accordance with Section 3401.8.

9        

**Note:** Many parapets function as required fire walls and are required to remain  
10        in place. There may also be restrictions on alteration and removal of parapets  
11        on historic buildings.

12        6. Cracked concrete and masonry shall be repaired where required by FEMA 306, 307  
13        and 308.

14        7. Strengthening of the overall structure is not required.

15        8. Fire protection and safety systems required when the building was built or altered are  
16        required to be repaired in accordance with Section 3401.2.

17        9. No portion of the building shall be altered so that the building becomes less safe than  
18        it was before the damage occurred, nor shall the work create an unsafe condition as  
19        defined in Section 102.

20        **3405.2.3 Requirements for repair of moderate damage.** Repair of buildings with  
21        damage ratios of at least 10 percent and less than 30 percent shall comply with Section  
22        3405.2.2 and this Section 3405.2.3.

1                   All structures supporting and supported by the damaged portions of the building shall  
2 be repaired in accordance with items 1–6 below.

3                   1. The capacity of existing structural elements supporting and supported by the  
4                   damaged portion of the building shall not be reduced below the building's  
5                   condition before the damage occurred.

6                   2. The lateral loading to existing elements of the seismic force resisting system shall  
7                   not be increased beyond their capacity.

8                   3. New work shall not introduce new irregularities, and shall not worsen existing  
9                   irregularities.

10                  4. New structural elements shall be detailed and connected to the existing structural  
11                  elements as required by this code.

12                  5. New or relocated nonstructural elements shall be detailed and connected to  
13                  existing or new structural elements as required by this code.

14                  6. The alterations shall not result create an unsafe condition.

15                  **3405.2.4 Requirements for repair of significant damage.** Repair of buildings with  
16                  damage ratios of at least 30 percent and less than 50 percent shall comply with Sections  
17                  3405.2.2, 3405.2.3 and this Section 3405.2.4.

18                  1. The engineer shall submit a report identifying structural damage, and falling  
19                  hazards to exitways, pedestrian walkways and public rights of way. The report  
20                  shall also contain a statement acknowledging that compliance with this section  
21                  may not satisfy the requirements for substantial alteration of Section 3404.8.

2. All identified falling hazards in exits and exit discharges shall be mitigated so as to limit damage at primary means of egress to increase the likelihood that occupants will be able to exit the building safely after a design basis earthquake.

3. The walls, roofs and floors of unreinforced masonry buildings shall comply with the sections of ASCE 31 or the International Existing Building Code specified in Table 3405.2. For ASCE 31 use of 3/4 of the design basis earthquake values with a minimum value of 0.80 for  $S_{DS}$  and of 0.35 for  $S_{D1}$  is permitted.

**Exception:** If the tested mortar strength is less than the minimums indicated in Table 3405.2, item a, the structure shall comply with the full provisions of ASCE 31 or IEBC

4. Repair of damage for buildings subject to this Section 3405.2.4 will be considered when determining whether Section 3404.8 provisions for substantial alterations apply.

**Table 3405.2**

**Requirements for Unreinforced Masonry Buildings**

<b><u>Component</u></b>	<b><u>ASCE 31 Section</u></b>	<b><u>IEBC Section</u></b>
a. <u>Masonry strength (mortar and anchor tests)</u> <u>for anchorage to masonry and for wall bracing</u>	<u>4.2.6.2.2</u>	<u>A106.3.3</u>
b. <u>Diaphragm shear transfer</u>	<u>4.2.6.3.2.6</u>	<u>A111.5</u>
c. <u>Out-of-plane transfer</u>	<u>4.2.6.3.5</u>	<u>A113.1</u>



d. <u>Wall bracing</u>	<u>4.2.6.3.4</u>	<u>A113.5</u>
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**3405.2.5 Requirements for repair of extensive damage.** Repair of buildings with damage ratios of at least 50 percent and less than 60 percent shall comply with Sections 3405.2.2 through 3405.2.4 and this Section 3405.2.5.

1. The structure shall be repaired and designed to satisfy the requirements for life safety performance at the design basis earthquake.

2. A seismic evaluation report shall be submitted. The report shall comply with rules promulgated by the building official, and the following requirements.

(a) The report shall be prepared by a structural engineer registered in the State of Washington.

(b) The report shall be based on ASCE 31 or ASCE 41 for life safety performance at the design basis earthquake. Unreinforced masonry buildings are permitted to comply with IEBC Appendix A1. The limitations of Section 3405.2.4 item 3 are not allowed.

(c) At a minimum, the report shall contain the information listed below. A previously-written report may be submitted if it satisfies the requirements of this section.

(i) An overall description of the building, including size (number of stories and basements, approximate floor area) and the occupancies or uses in the building.

(ii) Identification of building deficiencies.

(iii) A prioritized list of recommendations from the structural engineer on  
how to address the identified deficiencies.

(iv) The seismic evaluation report shall comply with rules promulgated by  
the building official.

**3405.2.6 Requirements for repair of more than extensive damage.** Repair of

buildings with damage ratios of 60 percent or more shall comply with Section 3404.8.

**3405.3 Unreinforced masonry chimneys.** Whenever an unreinforced masonry chimney is  
repaired, the chimney shall conform to rules promulgated by the building official.

**((3405.5)) 3405.4 Flood hazard areas.** For buildings and structures in flood hazard areas  
established in Section 1612.3, any repair that constitutes substantial improvement of the *existing*  
*structure*, as defined in Section 1612.2, shall comply with the flood design requirements for new  
construction, and all aspects of the *existing structure* shall be brought into compliance with the  
requirements for new construction for flood design. For buildings and structures in flood hazard  
areas established in Section 1612.3, any repairs that do not constitute substantial improvement or  
substantial damage of the *existing structure*, as defined in Section 1612.2, are not required to  
comply with the flood design requirements for new construction.

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**SECTION 3408**

**CHANGE OF OCCUPANCY**

**3408.1 Conformance.** No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancies or in a different group of occupancies, unless such building is made to comply with the requirements of this ~~((code))~~ chapter and chapters 4, 5 and 9 for such division or group of occupancies. Subject to the approval of the *building official*, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use. Change of tenants will be permitted without complying with this Section 3408 so long as the use is not changed.

**Exceptions:**

1. Subject to the approval of the building official, an automatic sprinkler system is not required in dwelling units according to Items 1.1 through 1.6 below. This exception is permitted to be used for the change in occupancy for one dwelling unit over the life of the building.

1.1 The occupancy of one unit is permitted to be changed to a dwelling unit without an automatic sprinkler system unless sprinklers are otherwise required by this chapter.  
If more than one unit is changed, the new units shall be equipped with a sprinkler system.

1.2 In buildings that do not comply with the provisions of this code for number of stories, allowable area, height or type of construction before the occupancy of the

unit is changed, an automatic sprinkler system shall be provided in the new unit.

The change of occupancy shall not be allowed if it increases the nonconformity.

1.3 In buildings undergoing substantial alteration, an automatic sprinkler system shall be installed where required by this code for new construction.

1.4 The occupancy of one unit is permitted to be changed to a dwelling unit in an existing duplex without an automatic sprinkler system where both of the following conditions are met:

1.4.1 The project is considered a substantial alteration only because of the change in occupancy; and

1.4.2 The building complies with the requirements for building height and number of stories for a Group R-2 occupancy.

1.5 Where the occupancy of one unit is changed to a dwelling unit in an existing duplex, sprinklers are required in the new unit and not in the existing units where all of the following conditions are met:

1.5.1 The existing duplex does not comply with the requirements for building height and story count for a Group R-2 occupancy;

1.5.2 The project is considered a substantial alteration only because of the change in occupancy;

1.5.3 The new unit is constructed as an addition to the duplex;

1.5.4 The new unit is separated from the existing duplex by a fire wall; and

1.5.5 The addition by itself complies with the requirements for a Group R-2 occupancy.

1.6 A sprinkler system is not required when a Group U occupancy that is accessory to a Group R-3 occupancy is converted to a dwelling unit.

**Code Alternate CA3408:** Changes of occupancy that are not substantial alterations and not historic buildings are permitted to comply with the *Seattle Existing Building Code* instead of this section.

**3408.2 Certificate of occupancy.** ~~((A certificate of occupancy shall be issued where it has been determined that the requirements for the new occupancy classification have been met.))~~ No change in the character of occupancy of a building shall be made without a certificate of occupancy, as required in Section 109 of this code. The building official is authorized to issue a certificate of occupancy pursuant to the exceptions to Section 3408.1 without certifying that the building complies with all provisions of this code.

**3408.3 Stairways.** ~~((Existing))~~ Subject to the approval of the building official, existing stairways in an existing structure shall not be required to comply with the requirements of a new stairway as outlined in Sections 1009.2 and 1009.4.2 where the existing space and construction will not allow a reduction in pitch or slope.

**3408.4 Seismic requirements for change** ~~((Change))~~ **of occupancy.** When a change of occupancy results in a structure being reclassified to a higher occupancy category, the structure shall conform to the seismic requirements for a new structure of the higher occupancy category. Where the existing seismic force-resisting system is a type that can be designated ordinary,

values of  $R$ ,  $\Omega_0$  and  $C_d$  for the existing seismic force-resisting system shall be those specified by this code for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of a detailed, intermediate or special system.

**Exceptions:**

1. Specific seismic detailing requirements of this code or Section 1613 for a new structure shall not be required to be met where it can be shown that the level of performance and seismic safety is equivalent to that of a new structure. Such analysis shall consider the regularity, over strength, redundancy and ductility of the structure within the context of the existing and retrofit (if any) detailing provided.
2. When a change of use results in a structure being reclassified from Occupancy Category I or II to Occupancy Category III and the structure is located in a seismic map area where  $SDS \leq 0.33$ , compliance with the seismic requirements of this code and Section 1613 are not required.

**3408.5 Conversion to residential occupancy.** Upon conversion of an existing building to residential occupancy, Sections 420, 1203 and 2904 shall apply, and the elements of the dwelling unit envelope that are altered shall comply with the sound transmission control requirements of Section 1207.

**3408.6 Substantial alterations.** Changes of occupancy that are substantial alterations as determined by Section shall comply with Section 3404.8.

**SECTION 3409**

**HISTORIC BUILDINGS**

1 **3409.1 Historic buildings—landmarks.** The provisions of this code relating to the construction,  
2 repair, *alteration, addition*, restoration and movement of structures, and change of occupancy  
3 shall not be mandatory for ~~((historic buildings))~~ landmarks where such buildings are judged by  
4 the *building official* to ~~((not constitute a distinct life safety hazard))~~ provide a reasonable degree  
5 of safety to the public and the occupants of those buildings.

7 \*\*\*

## 8 SECTION 3410

### 9 MOVED STRUCTURES

10 ~~((3410.1 Conformance. Structures moved into or within the jurisdiction shall comply with the~~  
11 ~~provisions of this code for new structures.))~~

13 **3410.1 Nonresidential buildings or structures.** Nonresidential buildings or structures moved  
14 into or within the city shall comply with standards adopted by the building official. The building  
15 official is authorized to require an inspection of the building before or after moving. The permit  
16 holder shall correct all deficiencies identified by the inspection. The building official is  
17 authorized to require that a bond or cash deposit in an amount sufficient to abate or demolish the  
18 building be posted prior to issuance of a permit. See Section 106 for information required on  
19 plans. Any moved building that is not in complete compliance with standards for moved  
20 buildings within 18 months from the date of permit issuance and is found to be a public nuisance  
21 may be abated.

24 **3410.2 Residential buildings or structures.** Residential buildings or structures moved into or  
25 within the city are not required to comply with all of the requirements of this code if the original  
26

occupancy classification of the building or structure is not changed. Compliance with all of the requirements of this chapter will be required if the moved residential buildings or structures undergo substantial alteration. Work performed on new and existing foundations shall comply with all of the requirements of this code for new construction.

## SECTION 3411

### ACCESSIBILITY FOR EXISTING BUILDINGS

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**3411.7 Alterations affecting an area containing a primary function.** Where an *alteration* affects the accessibility to, or contains an area of *primary function*, the route to the *primary function* area shall be *accessible*. The *accessible* route to the *primary function* area shall include toilet facilities, telephones or drinking fountains serving the area of *primary function*.

#### **Exceptions:**

1. The costs of providing the accessible route are not required to exceed 20 percent of the costs of the alterations affecting the area of primary function.
2. This provision does not apply to alterations limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to alterations undertaken for the primary purpose of increasing the accessibility of an existing building, facility or element.



**3411.8 Scoping for alterations.** The provisions of Sections 3411.8.1 through 3411.8.14 shall apply to *alterations* to existing buildings and facilities.

**3411.8.1 Entrances.** *Accessible* entrances shall be provided in accordance with Section 1105.

**Exception:** Where an *alteration* includes alterations to an entrance, and the building or facility has an *accessible* entrance, the altered entrance is not required to be *accessible*, unless required by Section 3411.7. Signs complying with Section 1110 shall be provided.

**3411.8.2 Elevators.** Altered elements of existing elevators shall comply with ASME A17.1 and ICC A117.1. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

**3411.8.3 Platform lifts.** Platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an *accessible* route.

**3411.8.4 Stairs and escalators in existing buildings.** In *alterations*, change of occupancy or *additions* where an escalator or *stair* is added where none existed previously and major structural modifications are necessary for installation, an *accessible* route shall be provided between the levels served by the escalator or *stairs* in accordance with Sections 1104.4 and 1104.5.

**3411.8.5 Ramps.** Where slopes steeper than allowed by Section 1010.2 are necessitated by space limitations, the slope of ramps in or providing access to existing buildings or facilities shall comply with Table 3411.8.5.

**3411.8.6 Performance areas.** Where it is *technically infeasible* to alter performance areas to be on an *accessible* route, at least one of each type of performance area shall be made *accessible*.

**3411.8.7 Accessible dwelling or sleeping units.** Where Group I-1, I-2, I-3, R-1, or R-2 (~~or R-4~~) *dwelling or sleeping units* are being altered or added, the requirements of Section 1107 for *Accessible* units apply only to the quantity of spaces being altered or added.

**3411.8.8 Type A dwelling or sleeping units.** Where more than 20 Group R-2 *dwelling or sleeping units* are being added, the requirements of Section 1107 for *Type A* units apply only to the quantity of the spaces being added.

**3411.8.9 Type B dwelling or sleeping units.** Where four or more Group I-1, I-2, R-1, R-2, or R-3 (~~or R-4~~) *dwelling or sleeping units* are being added, the requirements of Section 1107 for *Type B* units apply only to the quantity of the spaces being added.

**3411.8.10 Jury boxes and witness stands.** In *alterations*, *accessible* wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where the ramp or lift access restricts or projects into the *means of egress*.

**3411.8.11 Toilet rooms.** Where it is *technically infeasible* to alter existing toilet and bathing facilities to be *accessible*, an *accessible* family or assisted-use toilet or bathing facility constructed in accordance with Section 1109.2.1 is permitted. The family or assisted-use facility shall be located on the same floor and in the same area as the existing facilities. The

number of toilet facilities and water closets required by the State Building Code is permitted to be reduced by one, in order to provide accessible features.

**3411.8.12 Dressing, fitting and locker rooms.** Where it is *technically infeasible* to provide *accessible* dressing, fitting or locker rooms at the same location as similar types of rooms, one *accessible* room on the same level shall be provided. Where separate-sex facilities are provided, *accessible* rooms for each sex shall be provided. Separate-sex facilities are not required where only unisex rooms are provided.

**3411.8.13 Fuel dispensers.** Operable parts of replacement fuel dispensers shall be permitted to be 54 inches (1370 mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.

**3411.8.14 Thresholds.** The maximum height of thresholds at doorways shall be 3/4 inch (19.1 mm). Such thresholds shall have beveled edges on each side.

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## SECTION 3412

### COMPLIANCE ALTERNATIVES

**3412.1 Compliance.** The provisions of this section are intended to maintain or increase the current degree of public safety, health and general welfare in existing buildings while permitting repair, *alteration*, *addition* and change of occupancy without requiring full compliance with Chapters 2 through 33, or Sections 3401.3, and 3403 through 3409, except where compliance with other provisions of this code is specifically required in this section. Substantial alterations shall comply with Section 3404.9.

**3412.2 Applicability.** ~~((Structures existing prior to [DATE TO BE INSERTED BY THE JURISDICTION. NOTE: IT IS RECOMMENDED THAT THIS DATE COINCIDE WITH THE EFFECTIVE DATE OF BUILDING CODES WITHIN THE JURISDICTION], in which there is work involving additions))~~ Additions, alterations ~~((or))~~ and changes of occupancy shall be made to comply with the requirements of this section or the provisions of Sections 3403 through 3409. The provisions in Sections 3412.2.1 through 3412.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H or I.

**3412.2.1 Change in occupancy.** Where an existing building is changed to a new occupancy classification and this section is applicable, the provisions of this section for the new occupancy shall be used to determine compliance with this code.

**3412.2.2 Partial change in occupancy.** Where a portion of the building is changed to a new occupancy classification, and that portion is separated from the remainder of the building with fire barriers or horizontal assemblies having a *fire-resistance rating* as required by Table 508.4 for the separate occupancies, or with *approved* compliance alternatives, the portion changed shall be made to comply with the provisions of this section. Where a portion of the building is changed to a new occupancy classification, and that portion is not separated from the remainder of the building with *fire barriers* or *horizontal assemblies* having a *fire-resistance rating* as required by Table 508.4 for the separate occupancies, or with *approved* compliance alternatives, the provisions of this section which apply to each occupancy shall apply to the entire building.

Where there are conflicting provisions, those requirements which secure the greater public safety shall apply to the entire building or structure.

**3412.2.3 Additions.** *Additions* to existing buildings shall comply with the requirements of this code for new construction. The combined height and area of the existing building and the new *addition* shall not exceed the height and area allowed by Chapter 5. Where a *fire wall* that complies with Section 706 is provided between the *addition* and the existing building, the *addition* shall be considered a separate building.

**3412.2.4 Alterations and repairs.** An existing building or portion thereof, which does not comply with the requirements of this code for new construction, shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently. If, in the *alteration* or repair, the current level of safety or sanitation is to be reduced, the portion altered or repaired shall conform to the requirements of Chapters 2 through 12 and Chapters 14 through 33.

**3412.2.4.1 Flood hazard areas.** For existing buildings located in flood hazard areas established in Section 1612.3, if the *alterations* and repairs constitute substantial improvement of the existing building, the existing building shall be brought into compliance with the requirements for new construction for flood design.

**3412.2.5 Accessibility requirements.** All portions of the buildings proposed for change of occupancy shall conform to the accessibility provisions of Section 3411.

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Section 33. The following sections of Chapter 35 of the International Building Code, 2009 Edition, are amended as follows:

## CHAPTER 35

### REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section ((402.4)) 101.7.

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<b>ASCE/SEI</b>	American Society of Civil Engineers Structural Engineering Institute 1801 Alexander Bell Drive Reston, VA 20191-4400
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Standard reference number	Title	Referenced in code
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31-03                                      Seismic Evaluation of                                      3405.2.4, Table 3405.2,

Existing Buildings                                      3405.2.5

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41-06                                      Seismic Rehabilitation Of                                      3405.2.2, 3405.2.5

Existing Buildings

Section 34. Sections 2-30 of Ordinance 122528 and Sections 2-13 of Ordinance 122773 are repealed.

Section 35. The provisions of this ordinance are declared to be separate and severable. The invalidity of any clause, sentence, paragraph, subdivision, section or portion of this ordinance, or the invalidity of the application thereof to any person, owner, or circumstance shall not affect the validity of the remainder of this ordinance, or the validity of its application to other persons, owners, or circumstances.

Section 36. For a period of 60 days following the effective date of this ordinance, the Director may also accept and thereafter approve applications that are designed to comply with either the requirements of this Ordinance or the requirements of Ordinance 122528 as amended by Ordinance 122773.

Section 37. The amendments to Chapter 34 of the International Building Code, 2009 edition, contained in Section 32 of this ordinance shall take effect on the later of: 1) 30 days from and after their approval by the Mayor, but if not approved and returned by the Mayor within ten

1 days after presentation, they shall take effect as provided by Seattle Municipal Code Section  
2 1.04.020, or 2) the date of approval of these amendments by the State Building Code Council.

3 Section 36. Except for Chapter 34, this ordinance shall take effect and be in force 30  
4 days from and after its approval by the Mayor, but if not approved and returned by the Mayor  
5 within ten days after presentation, it shall take effect as provided by Seattle Municipal Code  
6 Section 1.04.020.  
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1  
2 Passed by the City Council the \_\_\_\_ day of \_\_\_\_\_, 2010, and  
3 signed by me in open session in authentication of its passage this  
4 \_\_\_\_ day of \_\_\_\_\_, 2010.  
5

6  
7 \_\_\_\_\_  
8 President \_\_\_\_\_ of the City Council  
9

10 Approved by me this \_\_\_\_ day of \_\_\_\_\_, 2010.  
11

12  
13 \_\_\_\_\_  
14 Michael McGinn, Mayor  
15

16 Filed by me this \_\_\_\_ day of \_\_\_\_\_, 2010.  
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19 \_\_\_\_\_  
20 City Clerk  
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22 (Seal)  
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